National Institute for Public Health
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RIVM letter report 2023-0409
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Synopsis

Consumer products with health, environmental and/or sustainability claims: indications for adverse health effects?

Statements such as ‘natural’, ‘organic’ or ‘vegan’ are becoming increasingly common on consumer products. These are referred to as health, environmental and/or sustainability claims. Consumers often think that products with such a claim are healthier and/or safer. The question is whether that assumption is correct, or whether these products can still be harmful to health. For the human body, it makes no difference whether a chemical substance is manmade (synthetic) or natural.

Due to the wide range of consumer products on the market, RIVM has focused on personal care products with words such as ‘natural’, ‘organic’ or ‘vegan’ on the packaging. It identified which chemicals (ingredients) are present in these products. The 35 most common ingredients were investigated further.

For most of these ingredients, it is not expected that normal use of the product containing them will have adverse health effects. However, RIVM does have concerns about ‘botanical ingredients’ in personal care products. These ingredients come from plants and may contain substances such as linalool and limonene. Linalool and limonene can cause an allergic reaction. Furthermore, there are concerns that botanical ingredients may contain pesticide residues and heavy metals. For many botanical ingredients, there is very limited hazard information available. More research should clarify whether these concerns are justified.

RIVM has also listed which labels are often found on consumer products with health, environmental and/or sustainability claims and what they mean. For personal care products, these are mainly COSMetic Organic and Natural Standard (COSMOS), NATRUE and Vegan. In the case of claims such as ‘non-toxic’, ‘free from...’ or ‘hypoallergenic’, it is often not clear to consumers what they mean. Moreover, some claims appear not to comply with the applicable regulations and legislation. Further research could focus on whether the claims investigated in this study comply with regulations.

RIVM considers it important that the meaning of labels and claims on packaging becomes clearer to consumers. It therefore recommends making more information available about this, for instance on the website waarzitwatin.nl.
The European Commission recently presented a draft directive to tighten the regulation of new labels and claims.

Keywords: consumer products, personal care products, claims, labels, botanical ingredients

Publiekssamenvatting

Aanwijzingen voor gezondheidsrisico's in consumentenproducten met claims over gezondheid, milieu en/of duurzaamheid?

Op steeds meer producten staan woorden als ‘natuurlijk’, ‘biologisch’ of ‘vegan’. Dit zijn zogenoemde gezondheids-, milieu- en/of duurzaamheidsclaims. Consumenten denken vaak dat producten met zo’n claim gezonder en/of veiliger zijn. De vraag is of dat klopt, of dat ze toch schadelijk kunnen zijn voor de gezondheid. Voor het menselijk lichaam maakt het namelijk niet uit of een chemische stof door de mens (synthetisch) of de natuur gemaakt is.

Vanwege het grote aanbod aan producten heeft het RIVM zich gericht op persoonlijke verzorgingsproducten waarop woorden als ‘natuurlijk’, ‘biologisch’ of ‘vegan’ staan. Denk aan shampoo en zeep. Het heeft in kaart gebracht welke chemische stoffen (ingrediënten) erin zitten. De 35 ingrediënten die het meeste voorkomen, zijn verder onderzocht.

Voor de meeste van deze ingrediënten geldt dat normaal gebruik van de producten waar ze in zitten geen schadelijke gezondheidseffecten heeft. Wel heeft het RIVM zorgen over ‘plantaardige ingrediënten’ in persoonlijke verzorgingsproducten. Deze ingrediënten komen uit planten en kunnen stoffen zoals linalool en limoneen bevatten. Linalool en limoneen kunnen een allergische reactie veroorzaken. Ook zijn er zorgen omdat botanische ingrediënten resten van bestrijdingsmiddelen en zware metalen kunnen bevatten. En van veel botanische ingrediënten is weinig bekend over hun gevaarseigenschappen. Meer onderzoek moet duidelijk maken of deze zorgen terecht zijn.

Het RIVM heeft ook op een rij gezet welke keurmerken vaak staan op consumentenproducten met gezondheids-, milieu- en/of duurzaamheidsclaims en wat ze betekenen. Voor persoonlijke verzorgingsproducten zijn dat vooral COSMetic Organica and Natural Standard (COSMOS), NATRUE en Vegan. Van claims als ‘non toxic’, ‘vrij van…’ of ‘hypoallergeen’ is vaak niet duidelijk wat ze betekenen of wat de fabrikant ermee bedoelt. Bovendien lijken de claims soms niet te voldoen aan de regels en wetten die hiervoor gelden. Meer onderzoek is nodig om te kijken of de producten voldoen.

Het RIVM vindt het belangrijk dat het voor consumenten duidelijker wordt welke keurmerken en claims waarvoor staan. Het raadt daarom onder andere aan meer informatie hierover te geven op de website waarzitwatin.nl. Op Europees niveau wordt gewerkt aan een richtlijn over claims op producten en regels waar milieu-keurmerken aan moeten voldoen.

Kernwoorden: consumentenproducten, persoonlijke verzorgingsproducten, claims, keurmerken, botanische ingrediënten

Contents

Summary

There is an increasing number of products with health, environmental and/or sustainability claims on the market. For example 'vegan' shampoo, 'organic' soap, and 'ecological' paint. In this study, it has been investigated whether there are indications of potential health risks for consumers as a result of the use of products with health, environmental and/or sustainability claims. In addition, an overview is given of the most common labels and claims used on products with health, environmental and/or sustainability claims.

First, ingredient lists of Beauty & personal care products with a health, environmental and/or sustainability claim and without a claim were obtained from Mintel Global New Products Database (GNPD). The database contains several pre-programmed claims which can be selected. For this purpose, the claims 'Vegan/non animal ingredient', 'Vegetarian', and 'All natural products' were selected. Beauty & personal care products which were released on the Dutch market in the last three years with such claims (*n*=1925) contained 2122 different ingredients. An identical list was made of all 1076 ingredients found in Beauty & personal care products without these claims (*n*=285). Next, a list was made containing ingredients which are used in the products with a claim, but are not used in the products without a claim. The regulatory measures of the 35 most frequently used ingredients on this list were checked. Next, 12 ingredients were selected for further analysis. It has been determined in which types of Beauty & personal care products the substances occur and what their function is in the product. Information on their toxicity was investigated in a small literature search.

The results show that most ingredients in the products with a health, environmental and/or sustainability claim have no direct indication for serious health risk, except the frequently used botanical ingredients. While botanical additives like plant extracts in cosmetics sound safe to many people as they come from nature, botanical ingredients like *Achillea millefolium*, *Citrus aurantium amara*, *Citrus grandis*, *Lavandula hybrida*, *Litsea cubeba*, and *Rosmarinus officinalis* have some common reasons for concern. First, they frequently contain allergens such as linalool and limonene. Frequent use (in several products) may result in unwanted skin reactions. Second, there is concern regarding pesticide residues and heavy metals that may be present in botanical ingredients. Further research into the safety of the use of botanical ingredients in consumer products would be valuable. Also ingredients that have not been selected in this screening are of particular interest, because there is no information on them in CLP or the Cosmetic Product Regulation.

Next, the study focussed on labels and claims on consumer products. Currently, there is no specific regulation governing definitions like 'natural' and 'organic'. This results in the emergence of private labels to substantiate claims made by companies about the 'natural' or 'organic' status of their products and/or ingredients. Consequently, as a consumer it is difficult to make sense of the many labels on the environmental performance of products and companies. In March 2023,

the European Commission proposed common criteria against greenwashing and misleading environmental claims. Under the proposal, consumers will have stronger reassurance that when something is sold as green, it actually is green, and clearer information is provided to choose environment-friendly products and services.

In this report it is shown that the leading labels for Beauty & personal care products are COSMOS-standard, NATRUE and Vegan. COSMOS-standard and NATRUE have similar, but not identical, definitions for organic and/or natural ingredients and for natural and/or organic cosmetic final products.

Another point of interest are the claims on the packages of Beauty & personal care products. Claims like 'non-toxic', 'free from…' or 'hypoallergenic' can be confusing for a consumer. For instance: are comparable products without the claim toxic? And is it harmful to use a product that does not state that it is 'free from…'? The meaning of these claims is often unclear and in some cases they may be not in accordance with the guidance on cosmetic claims.

Explanations of complicated terms on products could be communicated to consumers via an online platform such as Waarzitwatin.

Samenvatting

Er komen steeds meer producten met gezondheids-, milieu- en/of duurzaamheidsclaims op de markt. Bijvoorbeeld ‘vegan’ shampoo, ‘biologische’ zeep en ‘ecologische’ verf. In dit onderzoek is onderzocht of er gezondheidsrisico’s zijn voor consumenten die producten met gezondheids-, milieu- en/of duurzaamheidsclaims gebruiken. Daarnaast zijn de meest voorkomende labels en claims op producten onderzocht.

In dit onderzoek zijn ingrediëntenlijsten van beauty- en persoonlijke verzorgingsproducten met een gezondheids-, milieu- en/of duurzaamheidsclaim en zonder claim verkregen uit de Mintel Global New Products Database (GNPD). Deze database bevat verschillende voorgeprogrammeerde claims die gebruikt kunnen worden voor dataselectie. Voor deze studie zijn de claims ‘Vegan/non animal ingredient’, ‘Vegetarian’, en ‘All natural products’ gebruikt. Beauty- en persoonlijke verzorgingsproducten die de afgelopen drie jaar met dergelijke claims op de Nederlandse markt zijn gebracht (*n*=1925), bevatten 2122 verschillende ingrediënten. Een identieke lijst is gemaakt van alle ingrediënten (*n*=1076) die worden aangetroffen in beauty- en persoonlijke verzorgingsproducten zonder deze claims (*n*=285). Vervolgens is een lijst gemaakt met ingrediënten die wel in de producten met claim voorkomen, maar niet in de producten zonder claim. Voor 35 van de meest gebruikte ingrediënten van deze lijst is gekeken naar de geldende wet- en regelgevingen. Vervolgens werden 12 ingrediënten geselecteerd voor verdere analyse. Er is bepaald in welke soorten beauty- en persoonlijke verzorgingsproducten de ingrediënten voorkomen en wat hun functie is in het product. Informatie over de toxiciteit van deze stoffen werd onderzocht door middel van een klein literatuuronderzoek.

Uit de resultaten blijkt dat de meeste ingrediënten in de producten met een gezondheids-, milieu- en/of duurzaamheidsclaim geen directe indicatie hebben voor een ernstig gezondheidsrisico, met uitzondering van de veelgebruikte botanische ingrediënten. Hoewel botanische additieven zoals plantenextracten in cosmetica voor veel mensen als ‘veilig’ in de oren klinkt omdat ze uit de natuur komen, hebben botanische ingrediënten zoals *Achillea millefolium*, *Citrus aurantium amara*, *Citrus grandis*, *Lavandula hybrida*, *Litsea cubeba* en *Rosmarinus officinalis* een aantal redenen tot zorg. Ten eerste bevatten ze vaak allergenen zoals linalool en limoneen. Veelvuldig gebruik (in meerdere producten) kan daardoor ongewenste huidreacties veroorzaken. Ten tweede zijn er zorgen over residuen van bestrijdingsmiddelen en zware metalen die mogelijk aanwezig zijn in botanische ingrediënten. Verder onderzoek naar de veiligheid van het gebruik van botanische ingrediënten in consumentenproducten zou waardevol zijn. Interessant zijn ook de ingrediënten die in deze screening niet zijn geselecteerd, omdat daarover geen informatie beschikbaar is in de CLP wetgeving of de Cosmeticaverordening.

Vervolgens richtte het onderzoek zich op keurmerken en claims die op verpakkingen van consumentenproducten te vinden zijn. Momenteel

bestaat er geen specifieke regelgeving voor definities als ‘natuurlijk’ en ‘biologisch’. Dit resulteert in een wildgroei van keurmerken waarmee producenten de ‘natuurlijke’ of ‘biologische’ status van hun producten en/of ingrediënten onderbouwen. Als consument is het daardoor lastig om de betrouwbaarheid van de vele keurmerken in te kunnen schatten. In maart 2023 heeft de Europese Commissie gemeenschappelijke criteria voorgesteld tegen greenwashing en misleidende milieuclaims. Volgens het voorstel zullen consumenten er meer op kunnen vertrouwen dat wanneer iets als ‘groen’ wordt verkocht, het ook daadwerkelijk groen is, en wordt er duidelijkere informatie verstrekt om milieuvriendelijke producten en diensten te kiezen.

In dit rapport wordt beschreven dat de drie toonaangevende keurmerken voor beauty- en persoonlijke verzorgingsproducten COSMetic Organic and Natural Standard (COSMOS), NATRUE en Vegan zijn. De COSMOS-standaard en NATRUE hebben vergelijkbare, maar niet identieke, definities voor biologische en/of natuurlijke ingrediënten en voor natuurlijke en/of biologische cosmetische eindproducten.

Een ander aandachtspunt zijn de claims op de verpakkingen van beauty- & persoonlijke verzorgingsproducten. Claims als ‘niet giftig’ (‘non-toxic’), ‘vrij van…’ (‘free from…’) of ‘hypoallergeen’ kunnen voor een consument verwarrend zijn. Bijvoorbeeld: zijn vergelijkbare producten zonder de claim dan dus giftig? En is het schadelijk om een product te gebruiken waarop niet vermeld staat dat het ‘vrij is van…’? De betekenis van deze claims is vaak onduidelijk en in sommige gevallen zijn ze mogelijk niet in overeenstemming met de richtlijnen voor cosmetische claims.

Uitleg van ingewikkelde termen op producten zou via een online platform zoals Waarzitwatin aan consumenten kunnen worden gecommuniceerd.

1 Introduction

Health, environmental and/or sustainability claims are becoming increasingly common on consumer products. This varies from 'vegan' shampoo, 'organic' soap to 'ecological' paint. It is expected that natural and botanical raw materials will be used more often in these products than in products without these claims. In addition, there is often a assumption among consumers that 'natural', 'organic' or 'ecological' also means 'healthier'. However, there is no toxicological difference between the same substance synthesized in a factory or extracted from a plant.

By promoting consumer products with health, environmental, and/or sustainability claims such as 'vegan' and 'natural', consumers can wrongly assume that the use of the products is safe and does not entail any health risks.

In the current study, indications of potential health risks for consumers as a result of the use of products with health, environmental and/or sustainability claims were investigated. First, the definition of health, environmental and sustainability claims is given in Chapter 2. Also the regulatory frameworks within the European Union and the Netherlands that are relevant for non-food consumer products with health, environmental and/or sustainability claims are described. To determine whether ingredients of products with such claims differ from products without these claims, the ingredients of both groups have been listed using the Mintel Global New Products Database (GNPD)[1]. This is described in Chapter 3. Initially, the focus was on personal care products (incl. cosmetics) and household products. For each product type, overviews are made of the ingredients, claims and warnings that appear on the packaging. Next, substances that are used only in products with (a) claim(s) are screened on potential concerns. It is described whether further investigation is recommended on specific ingredients. In Chapter 4, an extensive description is given of the various (types of) claims and certifications to provide a better insight on the claims that were found in the Mintel GNPD. Chapter 5 describes further the alert system of the EU 'Safety gate' and the information from other scientific institutes or consumer organisations on products with health, environmental and/or sustainability claims. In addition, (social) media were searched for their advice to consumers and how they influence the choice of products. Finally in Chapter 6, conclusions and recommendations on the subject are given.

Information on claims and/or labels on environmental impact (e.g. CO_2 foot print), (micro)plastics, and animal testing are not included in this report.

[1] https://www.mintel.com/

2 Definitions of commonly used claims and legislations

In this chapter, the most common claims will be described as well as the regulation related to claims on personal care products (incl. cosmetics), and detergent products.

2.1 Definitions of commonly used claims

2.1.1 Biobased

The term 'biomass-based' or 'bio-based' refers to the origin of the raw material and is defined as "a product wholly or partly derived from biomass" [1]. The prefix 'bio' can refer to different functionalities (biodegradable, biocompatible, etc.) or processes (biological or biotechnological processes). To ensure transparent and non-misleading information to consumers, the prefix 'bio' should be substituted by more accurate and more informative equivalents and should refer to a European or International Standard. For example, NEN-EN 16575 [1] defines general terms to be used in the field of bio-based products, including horizontal aspects relevant for bio-based product standards. NEN-EN 16935 [2] specifies requirements for transparent and non-misleading business-to consumer communication of characteristics of bio-based products by means of labelling and claims. It does not specify requirements for bio-based products.

2.1.2 Natural

The term 'natural ingredients' is in Guideline ISO 16128 for cosmetic ingredients [3] defined as: "Natural ingredients are cosmetic ingredients obtained only from plants, animals, micro-organisms or minerals, including those obtained from these materials by

- physical processes (e.g. grinding, drying, distillation),
- fermentation reactions occurring in nature and leading to molecules which occur in nature, and
- other procedures of preparation including traditional ones (e.g. extraction using solvents) without intentional chemical modification".

2.1.3 Ecological

The terms ecological and organic are often used interchangeably, but do not have the same meaning. Organic refers to the farming method used to obtain goods. An organic product falls under a certain regulation and must follow specifications (see 2.1.4). Ecological does also include the complete life cycle assessment, including avoiding the ecosystem to be harmed during the production process. For the moment, the EU has not defined the term ecological product and the criteria to be able to state that on the label.

2.1.4 Organic

According EU regulation 2018/848 [4], an organic product is "a product resulting from organic production, other than a product produced during the conversion period referred to in Article 10. The products of hunting or fishing of wild animals are not considered as organic products". Detergents, for example, are not unprocessed or processed agricultural

products for use as food, they therefore do not fall under the scope of the EU organic legislation and can be neither certified as organic, nor labelled or advertised using the EU organic logo.
The term 'organic ingredients' is in Guideline ISO 16128 for cosmetic ingredients [3] defined as: "Organic ingredients are natural ingredients originating from organic farming methods or from wild harvesting in compliance with national legislation or equivalent International Standards where applicable". There is no set definition for organic detergents. The term organic or biological is also sometimes used for products based on enzymes or micro-organisms. However, the correct term in that context is microbiological.

2.1.5 Biodegradable

A biodegradable substance is one that can be broken down under the influence of micro-organisms into the naturally occurring substances water, carbon dioxide and inorganic salts. All detergents marketed in Europe must comply with the Detergents Regulation ((EC) No. 648/2004) [5] which requires that all surfactants in detergents and cleaning products must be biodegradable. For biodegradable plastics the EN 13432 standard prescribes time limits within which 90% material has to be degraded to be considered biodegradable [6].

2.1.6 Vegan

This term includes products that do not contain ingredients derived from animals, or animal by-products or by an intermediate process involving animals.

2.2 Legislations

The claims 'natural', 'vegan', 'ecological', 'organic', etc. are now commonplace in different consumer products. Several regulatory frameworks within the European Union and the Netherlands are relevant for non-food consumer products with health, environmental and/or sustainability claims. In the Netherlands, the Dutch Food and Consumer Product Safety Authority (NVWA) is the enforcement authority for compliance with laws and regulations on advertising. They have an enforcement role and can impose sanctions for companies that do not abide by these rules. The relevant EU legislation is described in this chapter.

2.2.1 General Product Safety Regulation (GPSR)

Regulation (EU) 2023/988 of the European Parliament and of the Council of 10 May 2023 on general product safety replaces Directive 2001/95/EC and aims to ensure the health and safety of consumers and the functioning of the internal market. It addresses the product safety challenges of emerging technologies, including the use of artificial intelligence (AI) and connected devices, and establishes clear obligations for online marketplaces. In the Netherlands, the rules are described in the General Product Safety and the Dutch Commodities Act (Warenwet [7]).

2.2.2 Unfair Commercial Practices Directive (UCPD)

Product claims are frequently subject to a framework regulation (e.g. the EC guideline Unfair Commercial Practices Directive (UCPD,

2005/29/EC) [8]) and self-regulation (e.g. the International Chamber of Commerce Code and national codes like the Stichting Reclame Code and Reclame Code Commissie) that is comprehensive and ensures consumer protection from misleading claims. The main purpose of the UCPD is to ensure fair communication towards consumers. The directive applies to all products offered on the European market, but does not provide specific rules regarding health, environmental and sustainability claims.

2.2.3 REACH Regulation

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) [9] provides definitions for:

- "Substances which occur in nature: means a naturally occurring substance as such, unprocessed or processed only by manual, mechanical or gravitational means, by dissolution in water, by flotation, by extraction with water, by steam distillation or by heating solely to remove water, or which is extracted from air by any means", and
- "Not chemically modified substance: means a substance whose chemical structure remains unchanged, even if it has undergone a chemical process or treatment, or a physical mineralogical transformation, for instance to remove impurities".

2.2.4 Classification Labelling and Packaging (CLP) Regulation

In the regulation on classification, labelling and packaging of substances and mixtures (EC No 1272/2008) [10], it is mentioned that "Statements such as 'non-toxic', 'non-harmful', 'non-polluting', 'ecological' or other statements indicating that the substance or mixture is not hazardous or any other statements that are inconsistent with its classification should not appear on the label or packaging of any substance or mixture".

2.2.5 Biocidal Product Regulation (BPR)

In the Biocidal Product Regulation ((EU) No 528/2012) [11], it is stated that "authorisation holders shall ensure that labels are not misleading in respect of the risks from the product to human health, animal health or the environment or its efficacy and, in any case, do not mention the indications 'low-risk biocidal product', 'non-toxic', 'harmless', 'natural', 'environmentally friendly', 'animal friendly' or similar indications.". And "Advertisements for biocidal products shall not refer to the product in a manner which is misleading in respect of the risks from the product to human health, animal health or the environment or its efficacy. In any case, the advertising of a biocidal product shall not mention 'low-risk biocidal product', 'non-toxic', 'harmless', 'natural', 'environmentally friendly', 'animal friendly' or any similar indication".

2.2.6 Cosmetics Product Regulation (CPR)

In Regulation (EU) No 1223/2009 on cosmetic products [12], it is mentioned that "The consumer should be protected from misleading claims concerning efficacy and other characteristics of cosmetic products". Cosmetic product claims must comply with the legally binding Common Criteria Regulation (Regulation (EU) No 655/2013) [13] which lays down six criteria that must be met for the justification of claims used in relation to cosmetic products:

- legal compliance

- truthfulness
- evidential support
- honesty
- fairness
- informed decision-making

The use of claims like vegan, natural or organic on cosmetic products is also covered by the above mentioned six criteria. The claim can provide an opportunity for a consumer to make an informed choice, but they should not imply any additional benefit for the consumer other than the factual ones (e.g. it should not be claimed that products are safer because they contain natural ingredients).
The European Commission updated the guidelines for the cosmetic claims in 2017. This Technical Document [14] further specifies when the 'free from' and 'hypoallergenic' claims can be used.

2.2.7 Detergents Regulation

All detergents marketed in Europe must comply with the Detergents Regulation ((EC) No. 648/2004) [5]. There are no provisions on claims in this regulation, however it is stated that all surfactants in detergents and cleaning products must be biodegradable. In most cases, surfactants are the main component of a washing or cleaning product.

2.2.8 Production and labelling of organic products

Regulation (EU) 2018/848 [4] sets out the rules on production, certification, labelling and advertising of organic food and feed. Cosmetics and detergents do not fall under the scope of the EU organic legislation and can be neither certified as organic, nor labelled or advertised using the EU organic logo. Therefore, this regulation does not prevent the use of the terms that refer to the organic production method, such as 'biological' or 'ecological', in products not related to agricultural products or not in the scope of the EU organic legislation, or whenever not liable to mislead the consumers.

2.2.9 EU Ecolabel Regulation

In Regulation (EC) No 66/2010 [15] on the EU Ecolabel, the criteria for the EU Ecolabel, developed at European level are described. EU Ecolabel is the official European environmental label and is recognised by all European Union countries, plus Norway, Iceland, and Liechtenstein. The label imposes sustainability requirements on the entire lifecycle of products and services. Displaying the EU Ecolabel indicates that the product or service has a reduced negative impact on the environment, public health, the climate, and natural resources. The EU Ecolabel is an ISO type I label and operates in accordance with ISO standard 14024 [16].

2.2.10 Green Claims Directive

A Commission study from 2020 highlighted that 53.3% of examined environmental claims in the EU were found to be vague, misleading or unfounded and 40% were unsubstantiated [17]. These voluntary green claims lead to 'greenwashing': the presentation of an environmentally responsible public image by a trader in a way that is unfounded or misleading and thereby creating an uneven playing field in the EU's market, to the disadvantage of genuinely sustainable companies.

In March 2023, the European Commission proposed common criteria against greenwashing and misleading environmental claims [18] in the Green Claims Directive. The proposal aims to improve the clarity and accuracy of green claims and provide consumers with higher quality information to choose environment-friendly products and services. Businesses will also benefit, as those that make a genuine effort to improve the environmental sustainability of their products will be more easily recognised and rewarded by consumers and able to boost their sales – rather than face unfair competition. In this way, the proposal will help establish a level playing field when it comes to information about environmental performance of products.

Several rules will make sure that claims are communicated clearly. For example, claims or labels that use aggregate scoring of the product's overall environmental impact, will no longer be permitted, unless compliant with EU rules. If products or organisations are compared with others, such comparisons should be based on equivalent information and data.

The proposal will also regulate environmental labels. There are currently at least 230 different labels [18] and there is evidence that this leads to consumer confusion and distrust. To control the proliferation of such labels, new public labelling schemes will not be allowed, unless developed at EU level, and any new private schemes will need to show higher environmental ambition than existing ones and get a pre-approval to be allowed. There are detailed rules about environmental labels in general: they must also be reliable, transparent, independently verified, and regularly reviewed.

However, according to the ordinary legislative procedure, the Green Claims Directive proposal will first be subject to the approval of the European Parliament and the Council.

3 Mintel GNPD search strategy

To determine whether the composition of products with health, environmental and/or sustainability claims differ from products without these claims, the ingredients of both groups have been listed using the Mintel Global New Products Database (GNPD). In this chapter, we describe on which criteria the products and ingredients lists were retrieved from the database. Ingredient lists were made for products with and without a claim. The 35 most used ingredients in products with a claim which were not used in product without a claim, were analysed. Moreover, in a case study two similar products, one with claims and a similar one from the same brand without claims, were compared.

3.1 Mintel GNPD search strategy

The Mintel Global New Products Database (GNPD)[2] was used as source for product information, such as the name, type, ingredients, and claims. Mintel GNPD contains detailed data on new products launched in the food, beverage, beauty & personal care, healthcare, household goods, and pet care markets. The product information is derived from the packaging of products in shops. It covers 270 subcategories, 140 product claims, 200 packaging attributes, and over 46,000 ingredients.

In order to analyse the link between the different types of products with their associated claims and ingredients the products must comply to all of the following criteria:

- (only) sold in the Netherlands,
- Included in the database in the last 3 years (the database does not remove older products that are no longer on the market),
- falling in/belonging to at least one of the two main product categories: Beauty & personal care or Household.

The database contains several pre-programmed claims which can be selected. For this study, the claims 'Vegan/non animal ingredient', 'Vegetarian', and 'All natural products' were selected. These groups were chosen as they were expected to be the most relevant groups that would contain products with health, environmental and/or sustainability claims. No other group of claims seemed to be relevant for this report.

Details of the types of products included in both categories can be found in Annex I.

3.2 Product information in Mintel GNPD

Table 1 provides the details of the search strategy in Mintel GNPD and the number of products that were used for further analysis in this study. The results from the search give an overview of the product (variant), brand, company, date published, (sub-)category, price in Euros, positioning claims, storage, unit pack size, package type, package material, number of variants, product description, launch type, barcode, flavours, fragrances, ingredients (data not shown).

[2] https://www.mintel.com/

Table 1 Details search criteria Mintel GNPD.

Category	**Criteria subcategories**	**Claims**	**Search details** (search performed on July 10, 2023)	**Result** (number of products)
Beauty & personal care	Without absorbent hygiene	Vegan/non animal ingredient Vegetarian All natural products	Netherlands Last complete 3 years	1925
Beauty & personal care	Without absorbent hygiene	Does not match on or more of Vegan/non animal ingredient Vegetarian All natural products	Netherlands Last complete 3 years	285
Household products	All	Vegan/non animal ingredient Vegetarian All natural products	Netherlands Last complete 3 years	206
Household products	All	Does not match on or more of Vegan/non animal ingredient Vegetarian All natural products	Netherlands Last complete 3 years	1026

There were more Beauty & personal care products with a claim added to Mintel GNPD than products without a claim in the last 3 years, while it is the other way around for Household products.
Due to the large amount of ingredients found and time constraints, further analysis was only performed on the data of the Beauty & personal care products, and not on Household products.

3.3 Ingredients found in Beauty & personal care products

The Beauty & personal care products (*n*=1925) with a claim like 'vegan/non animal ingredient', 'vegetarian' or 'all natural products' contained 2122 different ingredients (see Annex II). A similar list was made of all ingredients (*n*=1076) found in the 'Beauty & personal care products without claims' (*n*=285; see Annex III). Almost twice as many ingredients are found in the Beauty & personal care products with a claim. This can be explained by the fact that more (different) products were in the list of products with a claim compared to the products without a claim (which is probably due to the search settings).

Next, the different ingredient lists were compared. Ingredients which were used in Beauty & personal care products with a claim, but not in products without a claim, were listed. The 35 most frequently used ingredients from this list are shown in Table 2. The regulatory measures of these 35 most frequently used ingredients were checked in the CPR [12] and for harmonised classification (CLP Regulation [10]) (see Table 2). None of the substances is mentioned on the substances of very high concern (SVHC) list[3].

[3] https://echa.europa.eu/candidate-list-table

Based on the found information, 12 substances (green shaded in Table 2) were selected for further analysis. For these ingredients, it has been investigated in which types of Beauty & personal care products they occur and what the function of the ingredient in the product is. In addition, a limited literature search was performed to obtain information on the toxicity of the ingredients.

Table 2 Most frequently used ingredients in Beauty & personal care products with claims which were not found in Beauty & personal care products without claims

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
Denatonium benzoate	56	Denaturant, Fragrance	3734-33-6	223-095-2	No		Not classified		No
Macadamia integrifolia seed oil	40	Skin conditioning, Hair conditioning	159518-86-2; 438545-25-6; 129811-19-4	605-184-1; 610-153-0; 603-361-8; 924-613-6	No		Not classified		No
Glyceryl laurate	38	Skin conditioning (emollient), Surfactant (emulsifying)	59070-56-3 27215-38-9; 142-18-7	680-846-0 248-337-4; 205-526-6	No		Not classified		No
Ethylhexyl stearate	37	Skin conditioning (emollient)	22047-49-0	244-754-0	No		Not classified		No
Cucumis sativus (cucumber)	35	Skin conditioning (emollient)	89998-01-6	289-738-4; 918-550-3	No		Not classified		No
Benzophenone-4	31	Light stabilizer, UV absorber, UV filter	4065-45-6	223-772-2	Annex VI, entry 22	Maximum concentration in ready for use preparation: 5% (as acid)	Not classified	There is broad agreement in that a majority of data submitters	Yes

[4] As mentioned in the cosmetic ingredient database CosIng: https://ec.europa.eu/growth/tools-databases/cosing/, information retrieved on August 25, 2023
[5] Information retrieved on August 25, 2023
[6] As mentioned in the ECHA database: https://echa.europa.eu/nl/home, information retrieved on August 25, 2023

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
								agree this substance is Skin sensitising (100% of REACH registrations). Listed in EDC list II	
Beta-sitosterol	30	Emulsion stabilising, Fragrance, Skin conditioning, Light stabilizer	83-46-5	201-480-6	No		Not classified		No
Isoamyl laurate	30	Skin conditioning (emollient)	6309-51-9	228-626-1	No		Not classified		No
Squalene	28	Skin conditioning (emollient), Hair conditioning, Solvent	111-02-4	203-826-1	Annex II, entry 419	Prohibited Category 1 material and Category 2 material as defined in Articles 4 and 5 respectively of Regulation (EC) No 1774/2002 of the European Parliament and of the Council, and ingredients derived therefrom	Not classified		Yes

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
Mangifera indica	27	Abrasive; Skin conditioning (emollient); Skin protecting	90063-86-8	290-045-4; 926-514-3	No		Not classified		No
Althaea officinalis	22	Skin conditioning (emollient)	73049-65-7	277-254-6	No		Not classified		No
Carthamus tinctorius (safflower)	22	Fragrance, Skin conditioning (emollient), Emulsion stabilising	8001-23-8	232-276-5; 926-590-8	No		Not classified		No
Glucose	22	Humectant	50-99-7	200-075-1	No		Not classified		No
Rhus verniciflua peel cera	22	Skin conditioning (emollient), Light stabilizer	-	-	No		Not classified		No

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
CI 77220 (Calcium carbonate)	20	Colorant	72608-12-9: 207-439-9; 471-34-1: 1317-65-3	615-782-4: 471-34-1; 207-439-9; 215-279-6	Annex IV, entry 124	Purity criteria as set out in Commission Directive 95/45/EC (E 170)	Not classified	Substance is known to be on the EEA market in nanomaterial form, as indicated in the REACH registered substance factsheet(s), and as listed in the EUON Nanomaterials in the EU market list. Registration dossiers submitted to ECHA for this substance have been evaluated under REACH.	Yes

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
Citrus grandis	20	Skin conditioning (emollient), Perfuming, Absorbent, Astrigent, Tonic	90045-43-5; 8016-20-4	289-904-6; 616-973-5			Not classified	There is broad agreement in that a majority of data submitters agree this substance is Skin sensitising (100% of REACH registrations).	Yes

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
Benzophenone-3	19	Light stabilizer, UV absorber, UV filter	131-57-7	205-031-5	Annex VI, entry 4	Maximum concentration in ready for use preparation: a) Face products, hand products, and lip products, excluding propellant and pump spray products: 6%; b) Body products, including propellant and pump spray products 2,2%; c) Other products 0,5%. For a) and b) Not more than 0,5 % to protect product formulation a) If used at 0,5 % to protect product formulation, the levels used as UV filter must not exceed 5,5 %. b) If used at 0,5 % to protect product formulation, the levels used as UV filter must not exceed 1,7 %. Wording of conditions of use and warnings: For a) and b): Contains	Not classified	Under assessment as Endocrine Disrupting (ED list). Listed in EDC list II	Yes

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
						Benzophenone-3 (Not required if concentration is 0,5 % or less and when it is used only for product protection purposes.)			
Tetrasodium iminodisuccinate	19	Chelating	144538-83-0	604-420-0	No		Not classified		
Carica papaya	18	Tonic, Skin conditioning,	84012-30-6	281-675-0	No		Not classified		No
Oenothera biennis	18	Skin conditioning	90028-66-3	289-859-2	No		Not classified		No

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
(evening primerose)		(emollient), Astringent							
Achillea millefolium (yarrow)	17	Fragrance, Skin conditioning, Anti-seborrheic, Cleansing, Refreshing, Soothing, Tonic, Perfuming	84082-83-7; 8022-07-9	282-030-6; 639-661-0	No		Not classified	A majority of data submitters agree this substance is Skin sensitising	Yes
Polyglyceryl -3 distearate	17	Surfactant (emulsifying)	9009-32-9; 94423-19-5		No		Not classified		No
Salix alba	17	Skin conditioning, Astrigent, Soothing, Tonic, Hair conditioning	84082-82-6	282-029-0	No		Not classified	A majority of data submitters agree this substance is Skin sensitising	Yes
Sclerotium gum	17	Emulsion stabilising, skin conditioning, Viscosity controlling	39464-87-4	254-464-6	No		Not classified		No

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
Bertholletia excelsa	16	Skin conditioning (emollient, miscellaneous), Abrasive, Skin protecting	356065-50-4	609-151-2	No		Not classified		No
Citrus aurantium amara	16	Humectant, Skin conditioning (emollient), Refreshing, Fragrance	72968-50-4; 68916-04-1	277-143-2	Annex III, entry 350 and 351		Not classified	UVCB; There is broad agreement in that a majority of data submitters agree this substance is Skin sensitising (100% of REACH registrations).	Yes
Lavandula hybrida abrial/grosso herb oil, flower water	16	Perfuming	93455-96-0	297-384-7	Annex III, entry 360		Not classified	A majority of data submitters agree this substance is Skin sensitising	Yes
Litsea cubeba	16	Fragrance, Tonic, Perfuming	68855-99-2; 90063-59-5	290-018-7	No		Not classified	A majority of data submitters agree this substance is Skin sensitising	Yes

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
polyglyceryl -4 laurate	16	Surfactant (emulsifying)	75798-42-4	640-999-6	No		Not classified		No
Rosmarinus officinalis	16	Antioxidant, Deodorant, Skin conditioning, Perfuming, Antimicrobial, Refreshing, Tonic, Fragrance	84604-14-8	283-291-9	No		Not classified	UVCB; There is broad agreement in that a majority of data submitters agree this substance is Skin sensitising (100% of REACH registrations).	Yes
Boron nitride	15	Buling, Slip modifier	10043-11-5	701-292-9	No		Not classified	There is no overall agreement among data submitters, but a minority indicate they consider this substance as Toxic to Reproduction (0.2% of CLP notifications). Of the minority	Yes

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
								indicating the property of concern, most indicate that it may relate to an impurity or additive rather than the substance itself.	
Illite (yellow clay)	15	Abrasive, Absorbent, Anticaking, Bulking	12173-60-3	601-803-4	No		Not classified		No
Rosa canina (rosehip)	15	Astrigent, Skin conditioning (emollient), humectant, Keratolytic, Fragrance, Tonic	84696-47-9	283-652-0	No		Not classified		No
Vaccinium myrtillus (bilberry)	15	Antioxidant, Astringent, Hair conditioning, Nail conditioning,	84082-34-8	281-983-5	No		Not classified		No

Substance	Frequency	Function[4]	CAS	EC	Cosmetics Regulation [12][5]	Conditions for use in cosmetics as stated in Cosmetics Regulation	Harmonised classification CLP[6]	Properties of concern	Further analysis
		Skin conditioning							
Vitis vinifera	15	Skin conditioning (emollient), Fragrance, Skin protecting, Antioxidant	85594-37-2; 84929-27-1; 8024-22-4	287-896-9; 284-511-6	No		Not classified		No

Green shaded ingredients were selected for further analysis.

3.3.1 Achillea millefolium (yarrow)

Achillea millefolium (yarrow) is found the categories face/neck care, shampoo, shower products, conditioner, hair treatments, and body care. *Achillea millefolium extract* can be made from different parts of the plant:

- *Achillea millefolium* extract (CAS nr. 84082-83-7): the extract of the whole plant, which functions as fragrance ingredient, skin-conditioning agent.
- *Achillea millefolium* flower extract: the extract if the flowers of the plant, which functions as antioxidants, skin-conditioning agent.
- *Achillea millefolium* flower/leaf/stem extract: the extract of the flowers, leaves and stems of the plant, which functions as skin-conditioning agent.

Achillea extract is often supplied in polypropylene glycol and functions as fragrance or skin conditioning agent in cosmetic products. It is a multi-constituent substance of biological origin. Sesquiterpene lactones, polyacetylenes, simple coumarins, and flavonoids have been identified among the many components of *achillea millefolium* [19]. Constituents of concern in the plant are linalool (1-4000 ppm), thujone, quercetin, α-peroxyachifolid, and hydroquinone [20]. Linalool is a dermal sensitizer and has toxic effects. Thujone has been reported to cause neurological toxic effects; the suggested acceptable daily intake was 3-7 mg/kg/d. Quercetin has been reported to have some positive genotoxic effects. Hydroquinone has been reported to cause skin depigmentation and has a harmonized classification for Mutagenicity Cat 2, Carcinogenicity Cat 2 and Skin sensitization. However, the maximum concentration of use of *achillea millefolium*-derived extracts in cosmetics was reported to be 0.04%. For this reason the Cosmetic Ingredient Review (CIR) in the USA concluded that exposures to these constituents in cosmetics containing *achillea millefolium* would be below levels of toxicological concern.

The levels of constituents of concern in the ingredients derived from plants can vary widely and may even be undetectable, depending on the growing conditions of the plant, the methods of manufacturing of the ingredient, and other factors.
Although *achillea millefolium* has no harmonised classification, a majority of data submitters agree that the substance is skin sensitising. This may, however, for example be explained by the fact that *achillea millefolium* contains the dermal sensitizer linalool which is included in Annex III of the CPR (List of substances which cosmetic products must not contain except subject to the restrictions laid down) [12]. In addition, there is concern regarding pesticide residues and heavy metals that may be present in botanical ingredients [20-22]. Also, the use of other botanical ingredients in a cosmetic product that may contain constituents of concern (e.g., potential sensitizers) in combination with ingredients from the *achillea millefolium* could result in exposures that exceed levels of concern.

3.3.2 Benzophenone-3

Benzophenone-3 (BP-3) is used as an UV-filter in sunscreen products and is included in Annex VI (List of UV filters allowed in cosmetic

products) of the CPR [12] in which a maximum concentration for specific product types is included.
The substance is mainly found in soap and bath products and skincare products.
According to the ECHA website, this substance is under assessment for endocrine disruption properties, and it is included in the Community Rolling Action Plan (CoRAP). CLP notifiers indicate this substance is 'toxic to aquatic life with long lasting effects', 'very toxic to aquatic life', 'causes serious eye irritation', 'causes skin irritation, and may cause respiratory irritation'. However, the substance has no harmonised classification.
The Scientific Committee on Consumer Safety (SCCS) has performed a safety assessment concerning the possible endocrine disrupting properties of benzophenone-3 used as UV filter in sunscreens [23]. It was concluded that BP-3 is not safe for the consumer to use in sunscreens as body cream, sunscreen propellant spray or pump spray up to the maximum concentration of 6%. However, concentrations up to a maximum total concentration of 2.2% is considered safe in these products in case the substance is not additionally used as a protector in the same formulation. If so, the substance's concentration as a UV filter should not exceed 1,7%. Additionally, it is considered safe to use BP-3 as sunscreen in face and hands creams and lipsticks in concentrations up to 6%. Moreover, SCCS considered it safe to use this substance as UV-stabiliser to protect cosmetic formulations against sunlight up to 0.5% [23].

3.3.3 Benzophenone-4

Similar to benzophenone-3, benzophenone-4 (BP-4) is used as an UV-filter in sunscreen products in a concentration up to 5%, and as UV-stabiliser to protect cosmetic formulations against sunlight.
BP-4 is mainly found in soap and bath products, skincare, and shampoo.
In the ECHA database, the majority of data submitters identified this substance as skin sensitising. In addition, REACH and CLP notifications and registrations considered that BP-4 causes 'serious eye damage', 'causes skin irritation', and 'may cause an allergic skin reaction'. SCCS considered recently that the use of BP-4 is safe when used as UV filter up to a maximum concentration of 5% in sunscreen, face and hand cream, lipstick, sunscreen propellant spray and pump spray, when used separately or in combination [24].

3.3.4 Boron nitride

Boron nitride is an inorganic compound that is widely used in cosmetics in its hexagonal crystal form [25]. It is found products in the categories eye colour cosmetics, face colour cosmetics, and skin care. Due to its unique graffiti- and ceramic-like smoothness and thermal inertness, boron nitride is utilized as a slip modifier, which allows substances to flow more readily and smoothly without chemical reaction [25, 26].
Boron nitride does not have a harmonized classification. However, a minority of CLP notifiers indicate they consider this substance as toxic to reproduction (0.2% of CLP notifications), which is caused by an impurity or additive rather than the substance itself. However, there are no reproductive toxicity studies with boron nitride to either confirm or reject this assumption. It is also noted that boron itself is a well-known reproductive toxicant.

Another concern is the possible presence of nano particles, although boron nitride is not marketed as a nano material.

There are no restrictions for boron nitride in the European Union list of cosmetic ingredients [12]. The CIR evaluated the safety of using boron nitride in cosmetics concluding it is safe, based on its inability to penetrate the outer layer of the skin [25, 27].

3.3.5 CI 77220 (Calcium carbonate)

CI 77220 (calcium carbonate) is a white pigment which is mainly found in toothpaste, tooth whitening powder, and coloured cosmetics. The pigment is the product obtained from ground limestone or by the precipitation of calcium ions with carbonate ions. Calcium carbonate is included in Annex IV (List of colorants allowed in cosmetic products), entry 124 of the CPR, and contains the note "Purity criteria as set out in Commission Directive 95/45/EC (E 170)" [12]. Commission Directive 95/45/EC is no longer in force, the purity criteria are now included in Commission Regulation (EU) No 231/2012 of 9 March 2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council [28]. The regulation sets maximal values for magnesium and alkali salts, fluoride, antimony, copper, chromium, zinc, barium, lead, and cadmium. Impurities found in calcium carbonate consist mainly of magnesium carbonate, quartz, clay, and mica [29]. Aluminium is a structural element of both clay and mica. In a recent report by EFSA, it was mentioned that exposure to aluminium via calcium carbonate in food, would exhaust a substantial percentage of the tolerable weekly intake or even largely exceed it [29]. There seems not to be concern with regard to the exposure to small particles, including nanoparticles, present in calcium carbonate [30].

3.3.6 Citrus aurantium amara

Citrus aurantium amara is mainly found in the product categories face/neck care, body care, shower products, conditioner, fragrances, face cleansers, and hand/nail care.
Citrus aurantium amara is included in the CPR in Annex III entry 350 and 351, stating that it should be included on the label from 0.01% in rinse-off products and 0.001% in leave-on products due to its sensitizing properties. This is an update of the regulation that applies to many fragrance compounds and will apply to products placed on the EU market from 31 July 2026 and made available on the EU market from 31 July 2028. [12].
Ingredients from the *citrus aurantium amara* can be extracted from different parts of the plant:

- *Citrus Aurantium Amara* (Bitter Orange) Flower Extract (CAS Nr. 72968-50-4): the extract of the flowers of *citrus aurantium amara*, which functions as skin-conditioning agents
- *Citrus Aurantium Amara* (Bitter Orange) Flower Oil: the volatile oil obtained from the flowers of *citrus aurantium amara*, which functions as fragrance ingredients; skin-conditioning agents
- *Citrus Aurantium Amara* (Bitter Orange) Flower Water: an aqueous solution of the steam distillate obtained from the flowers of *citrus aurantium amara*, which functions as fragrance ingredients; skin-conditioning agents

- *Citrus Aurantium Amara* (Bitter Orange) Flower Wax: a wax obtained from the flower of *citrus aurantium amara*.

Botanicals such as citrus are composed of hundreds of constituents, some of which have the potential to cause toxic effects. For example, bergapten (as known as 5-methoxypsoralen (5-MOP)) is a naturally occurring, phototoxic furanocoumarin (psoralen) in citrus peel oils [31]. In the CIR safety assessment published by Burnett *et al.* 2021, cosmetic allergens were identified in *citrus aurantium amara* (Bitter Orange) Flower ingredients, including benzyl alcohol, linalool, limonene and hydroperoxides [32]. Because botanical ingredients are complex mixtures, there is concern that multiple botanical ingredients in one product may each contribute to the final concentration of a single constituent. In addition, pesticide residues, heavy metals, and other plant species with possible adverse health effects on may be present in botanical ingredients [21, 22, 33].

3.3.7 Citrus grandis

Citrus grandis is found in many different product categories like hand/nail care, bath additives, shower products, face/neck care, body care, liquid soap, face – cleansers, and shampoo. Citrus Grandis (Grapefruit) Leaf Extract is the extract of the leaves of the *citrus grandis*, which functions as skin-conditioning agents-miscellaneous. *Citrus grandis* (grapefruit) peel oil is the volatile oil obtained from the peel of the grapefruit, which functions as fragrance ingredients; skin conditioning agents-miscellaneous.
Comparable to the ingredients from the *citrus aurantium amara*, limonene is frequently reported to be present in the ingredients from the *citrus grandis* [31, 32].

3.3.8 Lavandula hybrida abrial/grosso herb oil, flower water

Lavandula hybrida in its several forms is found in shower products, face/neck care, body care, hair treatments, face - cleansers, hand/nail care, deodorants, shampoo, bath additives, fragrances, bar soap, and liquid soap.
Lavandula hybdrida is included in the CPR for its skin sensitizing properties in Annex III, entry 360: the presence of the substance or substances shall be indicated 'Lavandula Oil/Extract' in the list of ingredients referred to in Article 19(1), point (g), when the concentration of the substance or substances exceeds: 0,001% in leave-on products, and 0,01% in rinse-off products.
Ingredients from the *lavandin* can be extracted from different parts of the plant:

- *Lavandula Hybrida* Abrial Herb Oil is an essential oil distilled from the flowering herbs of the Lavandin, Lavandula hybrida var. abrial
- *Lavandula Hybrida* Grosso Herb Oil is an essential oil distilled from the flowering herbs of the Lavandin, Lavandula hybrida grosso
- *Lavandula Hybrida* Flower Water is an aqueous solution of the steam distillate obtained from the flowers of lavender, Lavandula hybrida

The 'Abrial' is highly valued for its fragrance - similar to that of true lavender, while 'Grosso' is currently the most cultivated for economic reasons. The main components of lavender oil are linalool, linalyl acetate, 1,8-cineole, and camphor [34].
The European Medicins Agency (EMA) assessed the use of lavender oil in traditional medicine and concluded that there are, apart from its sensitizing properties, no major concerns over the safety of lavender oil [35].

3.3.9 Litsea cubeba

The essential oil *litsea cubeba* is found in products like liquid soap, body care, bar soap, and shampoo. The composition of essential oils varies based on the extraction method, cultivar, plant parts, time of sampling and processing. It was shown that the main components of the essential oil *litsea cubeba* are geranial and neral, which are isomers commonly named together as citral [36]. The next component was limonene.
Citral, geranial and neral are skin sensitizing substances included in the CPR in Annex III, entry 70: the presence of the substance or substances shall be indicated as 'Citral' in the list of ingredients referred to in Article 19(1), point (g), when the concentration of the substance or substances exceeds: 0,001% in leave-on products, and 0,01% in rinse-off products.

3.3.10 Rosmarinus officinalis

Rosmarinus officinalis is mainly found in body creams, shampoos and conditioners, deodorant, shower gel and hand soap.
Ingredients from the *rosmarinus officinalis* can be extracted from different parts of the plant:

- *Rosmarinus officinalis* (rosemary) extract (CAS nr. 84604-14-8) is an extract of the whole plant and functions as conditioning agent
- *R officinalis* (rosemary) flower extract is an extract of the flowers of *R officinalis* and functions as antioxidant, deodorant agents, and skin conditioning agents
- *R officinalis* (rosemary) flower/leaf/stem extract is an extract of the flowers, leaves, and stems of *R officinalis* and functions as fragrance ingredients and skin conditioning agents
- *R officinalis* (rosemary) flower/leaf/stem water is the aqueous solution of the steam distillates obtained from the flowers, leaves, and stems of *R officinalis* and functions as fragrance ingredient
- *R officinalis* (rosemary) leaf is from the leaf of *R officinalis* and functions as skin-conditioning agents
- *R officinalis* (rosemary) leaf extract (CAS nr. 84604-14-8) is the extract of the leaves of *R officinalis* and functions as antimicrobial agents, antioxidant, fragrance ingredients, and skin conditioning agents
- *R officinalis* (rosemary) leaf oil (CAS nr. 8000-25-7) is the essential oil obtained from the flowering tops and leaves of *R officinalis* and functions as fragrance ingredients, and skin conditioning agents
- *R officinalis* (rosemary) leaf water is an aqueous solution of the steam distillate obtained from the leaves of *R officinalis* and functions as fragrance ingredient
- *R officinalis* (rosemary) water is an aqueous solution of the steam

distillate obtained from *R officinalis* and functions as fragrance ingredient

R officinalis L. is composed of an array of constituents, primarily phenolic acids, flavonoids, monoterpenes, diterpenes, diterpenoids, and triterpenes, including carnosol, limonene, linalool [37].
Because botanical ingredients, derived from natural plant sources, are complex mixtures, there is concern that multiple botanical ingredients may each contribute to the final concentration of a single constituent.

3.3.11 Salix alba

Salix alba is mainly found in day creams, conditioners and anti-dandruff shampoos. *Salix Alba* (Willow) Bark Extract is the extract of the bark of *Salix alba*. Willow bark extracts have been used for thousands of years as an analgesic, antipyretic and anti-inflammatory agent. Willow bark constituents include flavonoids, tannins and salicylates. The active constituent of willow bark is thought to be salicin [38, 39]. The salicin, flavonoids and tannins content as well as that of other components in the plant material depend on numerous factors including the species used and manufacturing process. Following the ECHA Database[7], salicin is a known skin sensitizer. However, at least for food, the main reason for concern is the content of heavy metals, mainly cadmium, in the white willow bark [38].

3.3.12 Squalene

Squalene is found in products like shampoo, body care products, liquid soap, conditioner, shower products, lip care products, face colour cosmetics - foundations/fluid illuminators, hand/nail care products, and razors. It is used as skin conditioner (emollient), hair conditioner, and/or solvent. Squalene is an unsaturated branched chain isoprenoid hydrocarbon. Current sources for squalene are primarily fish oils, and in particular shark liver oils. There can be problems associated with the use of squalene extracted from shark liver oil, for instance, sharks may be infected by pathogens that are also infectious for humans or that produce substances that are harmful to humans [40]. Squalene can also be found in plant oils (e.g. olive oil).

Cosmetic products containing ingredients of animal origin must comply with the safety requirements laid down in the CPR. Some ingredients of animal origin are not allowed for use in cosmetic products in the EU. According to Annex II of the Cosmetics Regulation [12], Category 1 material and Category 2 material as defined by Regulation (EC) No 1069/2009 are banned for use in cosmetics [41]. Depending on the source of squalene it is allowed or not in cosmetic products. However it is not required to indicate the origin of an ingredient (e.g. animal or plant). As a consequence, it is unknown to which extent shark squalene is used in cosmetic products which may pose a risk, except certified vegan products (12 of the 28 products containing squalene investigated in this study have the label Vegan Society Approved Vegan Trademark, 16 products only have the self-declared claim vegan).

[7] https://echa.europa.eu/nl/home

3.4 Case study: comparison of two shampoos

In order to get an impression of the differences in the ingredient lists between a product with and without a health, environmental and/or sustainability claim, two shampoos of the same brand were compared. Note: for this comparison the settings in the Mintel GNPD as mentioned in Chapter 3.1 were used, i.e. pre-programmed claims were used to divide products in the category with or without 'health, environmental and/or sustainability claim'. The following claims were given on the packaging of the two selected products:

- Claims on the product with 'health, environmental and/or sustainability claim':
  - 100% biodegradable
  - 0% sulphates and silicone
  - 94% ingredients from natural origin
  - Bottle made with 100% recycled plastic
  - Biological bamboo extract
  - Plant-based cleaners
  - No artificial colours
  - No ingredients from animal origin
- Claims on the product without 'health, environmental and/or sustainability claim':
  - 93% ingredients from natural origin
  - Bottle and cap 100% recycled and recyclable
  - Part of coconut boost line

The shampoos selected for this case study contained 21 ingredients (shampoo with a claim) and 18 ingredients (shampoo without a claim). The goal of both products is the same, the basic ingredients (n=11) of the shampoos were comparable. On average, shampoos with a claim included in this study (n=47) contained 23 ingredients (median 23, range 12-47), and the shampoos without a claim (n=9) contained 28 ingredients (median 27, range 22-36).

Due to the low concentrations used in products it probably does not result in a risk for consumers, but both products contain ingredients classified under CLP as harmful to aquatic life with long lasting effects, and/or classified for the hazards serious eye damage, serious eye irritation, skin irritation, severe burn, allergic skin reaction or may cause an allergic skin reaction or respiratory irritation.
The total number of ingredients is higher in the product with 'health, environment and/or sustainability claim', as well as the number of ingredients that cause harm/toxicity to aquatic life (with long lasting effects) as compared to the product without the claim. However, as this is so far only observed by comparing two products, this observation cannot be extrapolated for all products containing a health, environmental and/or sustainability claim.

The claims on these products were checked. However, without fully analysing the product in a laboratory and the documentation of the origins of these chemicals, it is not possible to make a statement whether the claims are correct. The only claim that could be checked was about the absence of silicone and sulphates and it was correct.

4 Labels and certifications

Labels and certifications can be found on the packages of consumer products. They indicate for example that the product has a reduced negative impact on the environment as set by specified criteria. In addition, claims like 'natural', 'vegan', and 'organic' are frequently used on packages of consumer products.
In this chapter, first the most common claims and labels on products found in the Mintel GNPD will be described and then the other found labels will be explained.

4.1 Claims and labels found on products in the Mintel GNPD

4.1.1 Claims

The data from the Mintel GNPD contains two columns which describe claims mentioned on the package of a product: positioning claims and product description. Table 4 shows an overview of the claims found in the data obtained from the Mintel GNPD. In total 92 different claims were found from the analysis of Beauty & Personal Care products with claims (*n*=2652 products) and Household products with claims (*n*=216 products) (Table 4). Most products have multiple claims.

Table 3 Frequency of occurrence of claims in both categories of products.

Claim	Beauty & personal care products	Household products
Alcohol Free	74	1
All Natural Product	335	58
Allergy friendly	0	4
Aromatherapy	124	18
Bio	126	37
Biodegradable	278	151
Botanical	1324	126
Botanical/Herbal	1263	122
Can be composted	0	2
Carbon balanced	2	2
Carbon Neutral	64	6
Card is made from grass paper	0	1
Charity	119	8
Cruelty-free	160	31
Demeter: a minimum amount of Sulphur Dioxide is used	0	2
Dermatologically tested	791	35
Does not require rinsing	0	3
Eco-formula	0	1
Eco-friendly	31	18
Economic	11	3
Environmentally-conscious	0	1
Ethical	1525	197
Ethical - Animal	669	57
Ethical - Biodegradable	143	80
Ethical - Charity	143	8

Claim	Beauty & personal care products	Household products
Ethical - Environmentally Friendly Package	944	136
Ethical - Environmentally Friendly Product	675	159
Ethical - Human	172	11
Ethical - Recycling	710	110
Ethical - Sustainable (Habitat/Resources)	678	110
Ethical - Toxins Free	27	0
Fair-trade	2	2
Food-grade	2	1
Fragrance free	132	23
Free from Added/Artificial Additives	1	2
Free from Added/Artificial Colourings	162	30
Free from Added/Artificial Flavourings	2	0
Free from Added/Artificial Preservatives	79	1
Free from additives	0	2
Free from artificial ...	11	9
Free from colouring	3	3
Free from fragrance	29	3
Free from synthetic ...	36	3
Gluten Free	49	0
GMO Free	64	1
Halal	25	0
Handmade	53	7
Hypoallergenic	119	44
Inspired by nature and the ancient art of living wisely	0	1
Low/No/Reduced Allergen	4	0
Mineral Oil/Petroleum Free	163	0
Minimal impact on the environment	0	1
Natural	1641	192
Naturally antibacterial and antiseptic	0	2
Naturally derived ingredients	23	2
No Additives/Preservatives	197	32
No animal ingredients	1776	169
Non-Acnegenic	1	0
Non-Comedogenic	45	0
Non-toxic	1	3
Not tested on animals	63	1
Oil Free	47	24
On-the-go	30	4
Organic	1499	64
Organic ingredients	105	1
Palm Oil Free	41	24
Paraben Free	179	20

Claim	Beauty & personal care products	Household products
pH neutral	82	18
Planet friendly	0	1
Plant-based	94	57
Plastic-free	35	12
Rainforest-kind	0	1
Recyclable	425	72
Recycled plastic	122	39
Refillable	65	18
Replace plastic bottles of washing-up liquid	0	1
Reusable	8	3
Safe	30	12
Silicone Free	247	0
Socially Responsible	3	3
Sulphate/Sulfate Free	140	0
Super safe	0	1
Sustainable	794	126
Vegan	3560	331
Vegan/No Animal Ingredients	1773	167
Vegan-friendly	27	7
Vegetable base	0	1
Vegetable origin	0	1
Vegetarian	150	0
Very concentrated	0	2
Water-neutral	2	1
Worry-free	1	1

Further explanation on the claims for Beauty & personal care products is given in the following sections.

4.1.1.1 'Non-toxic' and 'safe'

In several regulations, it is laid down that it is not allowed to mislead the consumer by claims on a product. In the CLP regulation (EC No 1272/2008) [10], it is mentioned that "Statements such as 'non-toxic', 'non-harmful', 'non-polluting', 'ecological' or other statements indicating that the substance or mixture is not hazardous or any other statements that are inconsistent with its classification should not appear on the label or packaging of any substance or mixture.". However, the statement 'non-toxic' was found once in the Beauty & Personal Care products with claims and three times in the Household products with claims. Cosmetic products do not fall under the CLP regulation, but always have to be safe, which means that the claim 'non-toxic' is misleading. The claim 'Ethical - Toxins Free' was found 27 times in the Beauty & Personal Care products with claims. In the case of cosmetic products, the claims must meet the six criteria (legal compliance, truthfulness, evidential support, honesty, fairness, and informed decision-making) as laid down in the Common Criteria Regulation (Regulation (EU) No 655/2013) [13]. Also, the claims 'safe' and 'super-safe' can give a consumer (unjustly) the feeling that there is no risk at all. Moreover, these claims can suggest that other products are 'toxic' or 'unsafe' which violates the fairness principle.

4.1.1.2 'Free from…' claims

Following the six criteria [13], 'free from…' claims on cosmetics, should for example not be made when:

- the claim is concerning an ingredient which is prohibited for use in cosmetics,
- the absence of a specific ingredient is not demonstrated by adequate and verifiable evidence,
- the claim should not be allowed when they refer to an ingredient which is typically not used in the particular kind of cosmetic product, and
- the claims should not be allowed when they imply a denigrating message, notably when they are mainly based on a presumed negative perception on the safety of the ingredient.

In this research, claims like 'alcohol free', 'fragrance free', 'paraben-free', and 'No Allergen' were identified. In the Technical Document on cosmetic claims it is however mentioned that "Certain parabens are safe when used in accordance to Regulation (EC) No 1223/2009. Considering the fact that all cosmetic products must be safe, the claim 'free from parabens' should not be accepted, because it is denigrating the entire group of parabens." [14]. In the Technical Document it is also mentioned that "The claim 'free from allergenic/sensitizing substances' is not allowed. A complete absence of the risk of an allergic reaction cannot be guaranteed and the product should not give the impression that it does." It is, however, beyond the scope of this project to assess in detail whether the claims comply with the regulations.

In addition, in practise 'alcohol free' means 'free from ethyl alcohol' (or 'ethanol free'). Alcohol free cosmetic products may contain fatty alcohols like cetyl, stearyl, cetearyl, or lanolin alcohol.

4.1.1.3 Claims referring to experimental studies

Products may bear claims that relate to the nature of experimental studies, for example 'dermatologically tested'. Consumer expectations regarding these claims may vary depending, in particular, on the presentation of the claim and its specific context. However, in all circumstances, consumers will expect that such claims are made only when the effects tested are favourable. The claim 'dermatologically tested' implies that the product was tested on humans under the supervision of a dermatologist. Depending on the presentation of the claim, it may refer to a specific efficacy or tolerance of the product. Consumer self-perceptions studies are not appropriate to support such claims [14].

4.1.1.4 'Hypoallergenic'

The claim 'hypoallergenic' can only be used in cases where the cosmetic product has been designed to minimize its allergenic potential. If a cosmetic product claims to be hypoallergenic, the presence of known allergens or allergen precursors should be totally avoided. The use of the claim 'hypoallergenic' does not guarantee a complete absence of risk of an allergic reaction and the product should not give the impression that it does. In the Technical Document on cosmetic claims it is mentioned that companies should consider whether consumers understand the claim 'hypoallergenic' [14]. If necessary, further

information or clarification regarding its meaning should be made available.

4.1.2 Labels

In the studied Beauty & Personal Care products with claims (*n*=2652) as well as Household products with claims (*n*=216), not all products have a certified label (especially in the category Household products), while others with a claim have multiple certified labels. Table 3 gives an overview of the frequency of occurrence of the different labels. The three most common labels found in this study are COSMetic Organic and Natural Standard (COSMOS), NATRUE and Vegan Society Approved (Ecocert follows for cosmetics the COSMOS-standard). More details as the conditions for complying with the label in terms of the use of chemicals in the (production chain of the) products on the three most common labels are provided below.

Table 4 Frequency of occurrence of labels in both categories of products.

Label	**Beauty & personal Care products**	**Household products**
BDIH	64	0
Certified Sustainable Enterprise	3	2
Certified Vegan	10	0
Cleanright Charter	0	14
Cosmos Cosmébio	38	0
COSMOS-standard	240	0
Cradle to Cradle	0	0
Ecocert	187	21
Ecogarantie label	0	0
EU Ecolabel	0	11
ICADA	6	0
Nature Care Products	0	8
Natural Care Products - Vegan	0	0
Natural Cosmetics Standard	7	0
Nature plus	0	0
NATRUE	123	2
Nordic Swan Ecolabel	3	2
Slow Cosmétique	7	0
Vegan Society Approved Vegan Trademark	263	24

4.1.2.1 *COSMOS-standard*[8]

The COSMOS-standard is a collaboration between the major certification bodies for organic and natural cosmetics. The standard was founded by the labels BDIH (Germany), Cosmebio (France), ECOCERT (France), ICEA (Italy), and the Soil Association (UK) and is now a widely used label for cosmetics.

The COSMOS-standard covers two levels for finished products 'COSMOS Organic' and 'COSMOS Natural' and two levels for raw materials:

- cosmetic products under organic certification: at least 95% of the physically processed agro-ingredients must be organic (except soap and alcohol-based products).
- cosmetic products under natural certification: there is no requirement to use a minimum level of organic ingredients.
- COSMOS certified raw materials (organic content): there is no minimum percentage of organic content required as soon as there is at least one organic ingredient in that raw material.
- COSMOS approved raw materials (non-organic content): no minimum of organic content is required.

To obtain the label 'COSMOS-standard', a product must comply to the COSMOS-standard criteria[9], which include:

- The user must comply with all relevant legislation, including the
  - EU Regulation on cosmetic products (EC No. 1223/2009) [12] as amended, the EU REACH Regulation (EC No. 1907/2006) [9], the Commission Regulation on claims in cosmetic products (EU No. 655/2013) [13], and/or other local or national laws concerning cosmetic products where appropriate.
- Nanomaterials, GMO's and irradiation are not allowed.
- Palm oil, palm kernel oil and their derivatives used in cosmetic products and ingredients must be from certified organic origin or sustainable sources.
- It is forbidden to use: plants, plant materials and microorganisms that have been genetically modified; primary raw materials extracted from living or slaughtered animals; primary raw materials harvested/collected by threatened species listed in the IUCN red list (https://www.iucnredlist.org/search).
- It is allowed to use ingredients of animal origin as long as they: are produced by animals but are not a part of the animal; do not entail the death of the animal concerned, and have been obtained using only the processes listed in Appendix I of the Standard.

[8] http://www.cosmos-standard.org/
[9] https://media.cosmos-standard.org/filer_public/a9/35/a935e9a9-6623-4d5d-b0dd-0c56c81417c3/cosmos-standard_v40.pdf

- Calculation rules as stated in the Standard must be used to determine the proportion of organic content for each cosmetic ingredient.
- Labelling and communication must be clear and must not mislead consumers, the requirements are elaborated in the Labelling Guide[10].

4.1.2.2 NATRUE[11]

Reliability assurance: audited every 2 years by an independent body
Type of products concerned: cosmetics
Must comply to: The international natural and organic cosmetics association started the NATRUE label. It guarantees natural and organic ingredients, environmentally friendly practices, no synthetic fragrances or dyes, no petrochemicals (paraffins, PEG, -propyl-, -alkyl-, etc.), no oils silicone or silicone derivatives, no ingredients from genetically modified plants or organisms (in accordance with the European organic standard), no irradiation of the finished product or its plant ingredients and finished products not tested on animals. Furthermore, it has three levels of certification: natural cosmetics (ingredients are natural and processed as little as possible), natural cosmetics with an organic content (>70% of the agricultural ingredients are organic), and organic cosmetics (>95% of the agricultural raw materials are organic). The last and the one that offers the most guarantee is NATRUE Organic Cosmetics.

The NATRUE Standard[12] is applicable to raw materials and finished products intended for cosmetic use. Independently of the formulation of a natural cosmetic product, all products must comply with:

- The basic requirements of Cosmetics Regulation (EC) No 1223/2009 [12].
- Under NATRUE's Criteria, organic certified natural substances and derived natural substances must come from controlled organic farming and/or wild collection, certified by a duly recognized certification body or authority to an organic standard or regulation. In terms of GMO, finished products, starting materials and the used enzymes and microorganisms must comply with the criteria laid down in the EU Eco-regulation (Regulation (EC) No 2018/848) [4].
- In natural cosmetics, natural fragrances (for example, essential oils) which correspond to ISO standard 9235:2021 [42] may be used. These include isolates of essential oils and essential oils reconstructed from them. Synthetic nature-identical fragrances may not be used in the formulation of natural cosmetics under NATRUE's criteria.

[10] https://media.cosmos-standard.org/filer_public/fe/64/fe64bd35-9357-4e24-a891-ba79dd6789be/cosmos-standard_labelling_guide_v40.pdf
[11] https://NATRUE.org/our-standard/NATRUE-criteria-2/
[12] https://NATRUE.org/uploads/2023/08/EN-NATRUE-Label_Requirements_v3.9-final-version-2.pdf

- Detergent surfactants substances used must be completely biodegradable in accordance with the EC Regulation on Detergents (Regulation (EC) No 648/2004) [5].

In addition, the standard specifies that:

- Chemically unmodified natural ingredients used should preferably be of organic grade. Natural cosmetics are products which are produced exclusively from natural substances. Natural substances are substances of botanic, inorganic-mineral or animal origin (except for dead vertebrates). Enzymatic and microbiological reactions are also permitted in so far as exclusively naturally occurring microorganisms or enzymes obtained from these are used, and the end products are identical to those which occur in nature.
- Nature-identical substances may only be used when natural substances cannot be recovered from nature using reasonable technical effort.
- Derived natural substances are only justified if their function cannot be achieved using natural substances.
- For the preservation of natural cosmetics, only the preservatives classified as nature-identical or derived natural may be used.
- The standard specifies calculation percentages of minimum levels of natural substances and natural substances of organic grade as well as for maximum levels of derived natural substances allowed for each certification level and product category under NATRUE's criteria.

4.1.2.3 Vegan Society Approved Vegan Trademark[13]

Reliability assurance: yearly renewal of the registration
Type of products concerned: fashion and textiles, cosmetics, Household and toiletries, food, drink, and supplements.
Must comply to
The product must be free from:

- Animals: The Vegan Society understands the word 'animal' to refer to the entire animal kingdom. That is all vertebrates and all multicellular invertebrates. 'Animal' can refer to a species or an individual; and is used as a noun or an adjective, as required. Unless otherwise stated, it usually means non-human animals.
- Animal ingredients: The manufacture and/or development of the product, and its ingredients, must not involve or have involved, the use of any animal product, by-product or derivative.
- Animal testing: The development and/or manufacture of the product, and its ingredients, must not involve or have involved, testing of any sort on animals conducted at the initiative of the company or on its behalf, or by parties over whom the company has effective control.

[13] https://www.vegansociety.com/vegan-trademark/vegan-trademark-standards

- Genetically Modified Organisms (GMOs): The development and/or production of GMOs must not have involved animal genes or animal-derived substances. Products put forward for trademark registration that contains or may contain any GMOs must be labelled as such.

4.2 Other labels and certifications

In this chapter a non-exhaustive list of labels that can be found in a Dutch store is shown. The number of labels and certifications is large and growing. Under the Green Claims Directive it is proposed to increase the regulation of new labels, as discussed in Chapter 2.2.10.
Per label, the 'reliability assurance', the 'type of products concerned' as well as the standard it 'must comply to' are described.

4.2.1 EU Ecolabel[14]

Type of label: controlled by independent party at regular basis
Type of products concerned: all consumer's products
Must comply to: NEN-EN-ISO 14024 [16]
EU Ecolabel is the official European environmental label and is recognised by all European Union countries, plus Norway, Iceland, and Liechtenstein. The label imposes sustainability requirements on the entire lifecycle of products and services: from raw material extraction through production and distribution to disposal. The label also encourages companies to develop innovative products that are durable, easy to repair and recyclable.

In addition to the label restrictions, the ISO 14020 [43] family of standards provide principles and requirements for communicating environmental aspects and environmental impacts of products through environmental statements including self-declared environmental claims and ecolabels. NEN-EN-ISO 14024 [16] establishes the principles and procedures for developing Type I environmental labelling programmes, including the selection of product categories, product environmental criteria and product function characteristics, and for assessing and demonstrating compliance.

[14] https://www.eu-ecolabel.nl/en/about-eu-ecolabel/

4.2.2 *Nordic Swan Ecolabel*[15]

Type of label: audited by an independent body
Type of products concerned: detergents, cosmetics
Must comply to: NEN-EN-ISO 14024 [16]
Nordic Swan Ecolabelling sets criteria on the toxicity and degradability of the ingoing substances, the amount of packaging and sustainable extraction of raw materials. The general requirements include: environmental properties (degradability, bioaccumulation and toxicity to aquatic organisms) of the chemical substances used, no use of substances classified as carcinogenic, mutagenic, harmful to reproduction or allergenic. Additionally, use of substances on the EU list of substances suspected of being endocrine disruptors is forbidden as well as the use of microplastics and use of perfume in baby and children's products. The packaging volume and quantity and type of material is also important for this label.

4.2.3 *Cosmos Cosmébio*

Reliability assurance: controlled yearly by independent party
Type of products concerned: cosmetics
Must comply to: COSMOS-standard
This label is divided in 3 different labels which have several points in common such as that a minimum of 95% of the ingredients must be of natural origin. Additionally, for the sub label Cosmos natural and cosmos organic have a limitation of petrochemical origin (list of authorized ingredients with maximum dosage) on the total product. The life-cycle of the product is also taken into account where the origin of raw materials is controlled, to encourage ethical and sustainable sourcing. Regarding the production, the label wants a mild and non-polluting transformation process. The manufacture of the finished product (own composition, packaging, storage) as well as a transparent labelling and responsible communication are in the specifications.

[15] https://www.nordic-ecolabel.org/product-groups/

4.2.4 *BDIH (Bundesverband der Industrie- und Handelsunternehmen)*[16]

Reliability assurance: audited yearly by independent party
Type of products concerned: cosmetics
Must comply to: COSMOS-standard
This ecological label indicates that the ingredients must be from natural origin except when there is no other alternative. Nanomaterials are prohibited. The label applies strict standards in terms of product biodegradability and toxicity to aquatic organisms, since it imposes critical thresholds. Additionally, it includes criteria that limit the amount of packaging per dose and prohibit certain packaging materials, such as PVC. Only a limited number of additives and processing techniques can be used in the production.
RIVM attaches a great deal of importance to the accessibility of its products, but at present we cannot yet provide this figure in an accessible form. Also see www.rivm.nl/accessibility.

4.2.5 *Certified Sustainable Enterprise*[17]

Reliability assurance: controlled every 3 years by independent party
Type of products concerned: products such as cosmetics detergents and cleaning agents.
Must comply to: self-standardization by industry that sets requirements on sustainability and improvement. The most important requirement for CSE is a sustainable business model i.e. production of ecological products (out of renewable raw materials or out of circular economy), trade with them, or offer a service that promotes sustainability.

4.2.6 *Certified Vegan*[18]

Reliability assurance: administered by the Vegan Awareness Foundation (official name of Vegan Action), a non-profit organization dedicated to educating the public about veganism and assisting vegan-friendly businesses

[16] http://www.kontrollierte-naturkosmetik.de/e/bdih.htm
[17] https://gfaw.eu/en/
[18] https://vegan.org/

Type of products concerned: beverages/drinks, food, home care, personal care, pet care, supplements, textiles
Must comply to: proving the source of the ingredient (plant, mineral, fungal, bacterial, or synthetic) and showing that the manufacturer has not tested the specific ingredient on animals (nor paid another organization to do so) since the year 2000.
The Certified Vegan Logo is a registered trademark, for products that do not contain animal products or by-products and that have not been tested on animals. The Certified Vegan Logo is permitted on products owned by companies located in the United States, Canada, Australia, New Zealand, and US territories but is distributed and recognized worldwide.

4.2.7 *Cleanright*[19]

Reliability assurance: self-assigned
Type of products concerned: soaps, detergents and maintenance products
Must comply to: the Charter (the label owner) stipulates a set Charter Sustainability Procedures for companies to implement in their management systems.
It has been established by the AISE (International Association for Soaps and Detergents). This label is self-assigned by the manufacturers. To claim it, companies must ensure that their goods are produced in an ecological way, by limiting, for example, the use of chemicals in favour of water. However, this label does not benefit from any external control.

4.2.8 *Cradle-to-Cradle*[20]

Reliability assurance: controlled every 3 years by independent party
Type of products concerned: cosmetics, personal care, and cleaning products
Must comply to:
The cradle-to-cradle concept designates an eco-design model based on the principle of zero pollution and the total reuse of raw materials used to make a product. The certification is awarded based upon four ascending levels of achievement: Bronze, Silver, Gold and Platinum, according to the product's performance in each category. For example, to achieve the Bronze level, a product must meet the minimum requirements in each of the five categories: the product must be made of materials that are safe for human and environmental health, and the materials must be recyclable or biodegradable. The product must also be

[19] https://www.aise.eu/library/artwork/cleanright-panel.aspx
[20] https://c2ccertified.org/get-certified

manufactured using renewable energy sources and must not contribute to climate change. Additionally, the product must be designed to conserve water and protect water quality. Finally, the product must be produced in a socially responsible manner, ensuring fair labour practices and safe working conditions. The higher the category, the stricter the criteria are.

4.2.9 Ecocert[21]

Reliability assurance: controlled every 3 years
Type of products concerned: Ecocert cosmos organic: organic and natural cosmetics, Ecocert ecodetergent: natural cleaning products
Must comply to: COSMOS-standard (cosmetics) or ECOCERT standard[22] (detergents)
This label guarantees an environmentally friendly production and processing processes, a promotion of the use of natural or organic ingredients including a prohibition of most of petrochemical ingredients, a responsible management of natural resources, and a transparency to the consumer by using communication and phraseology that does not mislead them.

4.2.10 Ecogarantie label[23]

Reliability assurance: audited yearly by an independent body
Type of products concerned: detergents
Must comply to: The goal of this label is to products that contains 100% of all natural extracts are organic, 100% neutral regarding the CO_2 footprint, they guarantee that the certified products meet strict quality standards in terms of safety and sustainability, most of the products are made with biodegradable ingredients to minimise their impact on the environment. Additionally, GMO are prohibited and petrochemical ingredients limited to the list accepted by the EU. Ecogarantie belongs to a Belgium company.

[21] https://www.ecocert.com/en/home
[22] https://ecocert.app.box.com/v/THE-STANDARD
[23] https://ecogarantie.eu/the-label/

4.2.11 *ICADA (International Cosmetics And Device Association)*[24]

Reliability assurance: controlled by independent party every year
Type of products concerned: cosmetics
Must comply to: ICADA Natural is a German label for organic and natural cosmetics. The label guarantees that the raw materials come from organic farming where possible. In addition, certain ingredients and production techniques are prohibited as well as GMO's. No ingredients from dead animals are used. Superfluous and non-recyclable packaging should be avoided, but these are not strict requirements. Some petroleum based ingredients are allowed. There is no explicit ban on microplastics, only a statement that ICADA is committed to take every step that is possible for a cosmetics association to actively prevent microplastics.

4.2.12 *Nature Care Products*[25]

Reliability assurance: audited annually by an independent body
Type of products concerned: detergents and cleaning agents, hygiene products, cosmetics
Must comply to: These labels require the use of natural ingredients and the use of only naturally occurring chemical processes in manufacturing. [44] Amongst others, the product may not contain GMO and the label only allows a limited use of hazardous substances. Requirements are set for the biodegradability of the product after use. The packaging must be environmentally friendly.
The Vegan logo can be added if the product meets the vegan criteria. The NSP logo applies to detergents and cleaning agents, hygiene products and the NCS logo to cosmetic products.

4.2.13 *Nature plus*[26]

Reliability assurance: evaluation by an independent institute
Type of products concerned: paints and construction materials
Must comply to: material specific requirements that include criteria on climate change, depletion of mineral and fossil resources, human

[24] http://icada.global/
[25] https://gfaw.eu/en/ncp/
[26] https://www.natureplus.org/

toxicity, formation of photochemical ozone. This label covers production of ingredients, manufacture of the product, use, end of life of unconsumed paint. The label favours natural ingredients over ingredients of petrochemical origin. For example, mineral-based paints must consist of 95% water and mineral ingredients. Plant-based paints must consist of 99% plant, mineral and/or water ingredients. However, this does not guarantee that significant environmental impacts are systematically reduced (climate change, human toxicity, photochemical ozone formation).

5 Sources of claims and ingredient information on consumer products

In this chapter, a description of the alert system called 'Safety Gate' is given. A search in the system was performed related to the claims found in the Mintel GNPD to investigate whether alerts were published on unsafe products related to the claims. Furthermore, other scientific institutes or consumer organisations were contacted in order to know if reports were already written on consumer products with health, environmental and/or sustainability claims. To finish, (social) media were searched for their advice to consumers and their possible influence on the preferences of consumers.

5.1 Alerts on claims in Safety Gate

Safety Gate[27] is the EU rapid alert system for dangerous non-food products. The system enables quick circulation of information on measures taken against non-food dangerous products among the national authorities responsible for product safety in Europe. The product categories 'chemical products', 'childcare articles and children's equipment', 'cosmetics', and 'eco-design' were selected, and only alerts published since January 1, 2022 until September 25, 2023. A free text search was performed on the terms 'bio', 'biobased', 'biodegradable', 'biological', 'ecological', 'natural', and 'organic'.

The search resulted in a total of 75 hits of which 53 had a chemical risk, 1 a choking risk, 1 entrapment, injuries and suffocation risk, 19 a microbiological risk and 1 a strangulation risk. Of the 53 chemical risk hits, 2 hits concerned tattoo ink, which were excluded from further analysis.

The reported chemical risks were based on the incompliance with the cosmetic products regulation [12]. Most of them contained butylphenyl methylpropional (BMHCA, lysmeral, 2-(4-tert-butylbenzyl) propionaldehyde, CAS nr 80-54-6), which is prohibited in cosmetic products since March 2022. Other products contained hydroquinone (1,4-Dihydroxybenzene, CAS nr 123-31-9), which is also forbidden in cosmetic products, with the exception that professionals can use it in artificial nail systems up to 0,02%. One product contained mercury, which is prohibited in cosmetic products (except the special cases which are included in Annex V of the cosmetics regulation). A mixture of the preservatives methylchloroisothiazolinone and methylisothiazolinone (MCI/MI), which is prohibited in leave-on cosmetics, was also found.

5.2 Reports by fellow scientific institutes in Europe

European fellow institutes were contacted to know if they have performed similar research. Organizations in different countries were contacted such as Portugal (DECO), France (Anses), Denmark (FBR), Germany (BfR), Hungary (TVE), and the European Consumer Organisation (BEUC). The different scientific institutes or consumer

[27] https://ec.europa.eu/safety-gate-alerts/screen/webReport#recentAlerts

organisations have performed some specific research on ecological products. Interesting reports are summarized below.

5.2.1 DECO

DECO is the Portuguese association for the defence of consumers (Associação Portuguesa para a Defesa do Consumidor). They participated in a European project named CLEAN[28]. The goal of that project was to thorough review the test protocols on dishwasher products, hand dishwasher products, all-purpose detergents, and bathroom cleaners.
In their report they mention a study conducted by Euroconsumers among 4210 consumers in Belgium, Italy, Portugal and Spain. The study indicates that:

- The majority of consumers indicate that they pay attention to environmental aspects when purchasing household detergents.
- Although consumers were concerned about the environmental aspects of detergents, a small number of respondents considered themselves well informed.
- Consumers have doubts about the environmental claims, with more than half of the respondents reporting they believe that environment-friendly claims are for marketing purposes.

During their research, DECO checked the environmental performance based on criteria of their choices of certain products depending on the ingredient lists. They concluded that 44 ingredients should be avoided because they have no role in performance in the products. A second list of ingredients that form a risk for the environment and should be replaced by other ingredients with the same function that are less harmful included: several surfactants, emulsifiers, viscosity controllers, chelating agents, scale inhibitors, or bleach stabilizers.

Another part of the project had the goal to identify labels and claims of dishwashing and hand dishwashing detergents. Green products were defined as those that carry 1-4 green claims, a traditional product would carry 0-3 green claims. Only few products with a harmful environmental impact (according to the scoring of the project) carry green claims, but they refer mostly to packaging.
The CLEAN project concluded that the green claims on detergents often are not very informative to consumers to determine the best environmental choice.

5.2.2 BEUC

BEUC (Bureau Européen des Unions de Consommateurs) mentioned a project called NordQual[29], financed by the EU Consumer Programme, a cooperation between consumer organizations in Denmark, Finland, and Sweden. The goal of this project was to evaluate household cleaners and identify potentially misleading marketing strategies.
According to the summary of the report "Based on product testing and desk research on 166 household cleaning products, the project identified the following challenges to consumers in choosing effective products that minimize impacts to health and the environment:

[28] https://www.euroconsumers.org/clean-project/
[29] https://www.sverigeskonsumenter.se/vara-projekt/nordqual-2020-2021-in-english/nordqual-report-2021/

1. Dual quality and market quality – product quality, contents, and availability can vary between Denmark, Finland, and Sweden
2. Poor performance – some products do not do the cleaning job consumers expect
3. Problematic chemicals – some ingredients can be harmful to health or the environment
4. Inaccessible ingredient information – consumers can have difficulty accessing ingredients information due to many companies out of compliance with EU detergent regulation
5. Greenwashing and misleading claims – unsubstantiated claims can mislead consumers
6. Hazard information and warnings – important consumer information is sometimes missing or hard to read"

Many recommendations were made for the consumer organisations, for the industry, enforcement agencies, policy makers, and eco- and allergy labelling schemes. The main recommendations are listed below:

- Inform consumers about the difference between credible labelling schemes versus empty greenwashing and marketing claims.
- Provide all the ingredients on the packages. Ensure online information is accessible and updated.
- Phase out problematic chemicals, for example, by requiring that products meet the Nordic Swan or EU Ecolabel criteria, and meet the Asthma Allergy Nordic label criteria.
- Remove unsubstantiated environmental or health claims from packages and instead communicate these qualities through credible ecolabels and allergy labels.
- More strictly regulate problematic chemicals in household cleaners including banning "Substances of Very High Concern" and other harmful chemicals. Take combination effects of exposure into account.
- Consider better regulation of misleading or unsubstantiated marketing claims and packaging designs that give the impression of a healthier or environmentally friendly product.
- Use the opportunities in the upcoming revision of the detergent regulation and the Chemicals Strategy to implement these initiatives.
- Fully ban the group of allergenic preservatives called isothiazolinones due to health and environmental impacts.

5.2.3 TVE

TVE is the Tudatos Vásárlók Egyesülete (Association of Conscious Consumers) in Hungary. They are working on an inventory and testing many products including the Ecolabel products.

- The tests were performed mostly on detergents and some cosmetics.
- They developed an app 'Conscious Consumer app'[30]: it covers the most typical household cleaning product categories, provides information about the sustainability and safety features of these products. Additionally, it has a ranking system based on the evaluation of substances in products. The data on substances is coming from the safety data sheets of products. By the end of

[30] https://tudatosvasarlo.hu/letoltes/

2023, there will be about 2000 products in the database. Products are ordinary, Eco-labelled and 'eco' products.
- An inventory of Eco-labelled products was also made, including chemicals and published online[31].

5.2.4 *Swedish projects*

The Swedish consumers' association (Sveriges Konsumenter, SK) has concerns about green claims that can be very misleading for consumers. However, they have not performed any recent studies but redirected us to the NordQual and CLEAN projects.
In an inventory from the NordQual project, test results on various products from different countries can be found.[32]

5.3 (Social) media and claims on consumer products

5.3.1 *News-related hits*

The Nexis database[33] contains articles from national and international newspapers and news magazines. A search was performed using the search terms 'biobased' OR 'biologisch afbreekbaar' OR 'biologisch' OR 'ecologisch' OR 'natuurlijk' OR 'organisch'. Subsequently the results were narrowed by time (January 1, 2022 until September 25, 2023), language (Dutch) and the terms 'gezond' and 'cosmetica'. This resulted in 60 news-related hits, of which 9 were relevant based on the title and after removing duplicate articles. Some highlights are summarized below.

- In one of the articles, a journalist is critical on a Danish cosmetics brand which prides itself on sustainability [45]. However, it hardly lives up to its green promises, mainly because of the use of propellants which contribute to the emission of volatile organic compounds (VOC). In another article, the reader is advised to "choose products with the ecolabel and do not automatically rely on marketing slogans such as 'natural' or 'organic'" [46]. The use of the app *KeurmerkenWijzer* made by Milieu Centraal is suggested by an article which helps the consumer to make sustainable choices as it contains an overview of labels and logos that can be found on products in the store [47].
- In an article discussing the increase in strict regulation concerning fragrances in cosmetics mentions that "A persistent misconception is that synthetic fragrances are harmful and natural ones are not. At least as often, it is natural extracts (essential oils) that are risky. In that respect, essential oils can be compared to cocaine: chewing a leaf of the coca plant does not do much harm, but boiling the leaves to concentrate cocaine and then shooting this cocaine straight through your nose is less healthy." [48].
- Making your own cosmetics and cleaning products has been a popular topic on social media during the last few years. In addition, you can personalize products by e.g. adding some drops of essential oil to a basic product (e.g. bath oil) [49].
- Although in general the tone of voice is critical and the authors seem to be well-informed, a remarkable advice is mentioned in

[31] https://tudatosvasarlo.hu/zold-otthon/okotermek-kereso/?type=eco
[32] https://www.sverigeskonsumenter.se/vara-projekt/nordqual-2020-2021/har-finns-alla-testresultat/
[33] https://signin.nexis.com/

an article: "We always recommend using products with as few ingredients as possible, because after a while an adverse skin reaction can occur" [50]. This advice is given more often, based on the (mis)conception that this way you can limit your exposure to harmful substances. But from a toxicological point of view it always depends on the toxicity, concentration, and exposure to the ingredients that are in the product, regardless of their number.

5.3.2 Internet and social media

Misleading information due to limited knowledge can be easily shared on social media by consumers and influencers, advertorials by companies, etc. An example of misleading information is already found by a simple Google search using the search terms "natuurlijke shampoo zonder chemicaliën", which resulted for example in a website stating "A natural shampoo without chemicals is extra nice for your hair and will work wonders - especially with summer coming, your locks could use a little more attention. But what is a good shampoo 'without the mess'?" [51]. This shows limited knowledge about chemicals as without chemicals, shampoo would not exist at all.

On the other hand, searching on "zijn natuurlijke ingrediënten beter" results in several websites of shops, organizations and lifestyle magazines mentioning for example that "Natural and organic products are not necessarily better for your skin. These products may also contain harmful or irritating substances. It is best to look at the list of ingredients on the product. You will then notice that perfume, one of the most harmful ingredients, has also been added to natural products." [52].

Much of the research on the preferences for and perceptions of 'natural' products or products with other claims has taken place in the food and medicine domains. A biased preference for 'natural' perfumes was observed in the study by Apaolaza *et al.* [53]. This type of bias is likely caused by many factors, including a 'natural-is-better' default belief and a belief that 'natural items' are safer than 'non-natural items' [54]. According to a survey conducted in Brazil in 2019, approximately 53% of respondents were interested in 'natural beauty products', and 31% believed that products made with 'organic' and 'natural' ingredients were more effective than those that used chemical products [55].

Other studies show the relationship between social media and consumer purchases of consumer products with claims [56, 57]. Social media influencers play a role in for example the beauty industry by marketing specific products for a fee. It is shown that even when the products which are promoted/endorsed by digital influencers do not represent the follower's philosophy of life, digital influencers are still able to shape the consumer's intentions [55]. Social media influencers are therefore seen as an effective marketing tool in targeting a broad demographic and increasing brand awareness [58].

6 Conclusion and discussion

6.1 Definitions and labels

Consumers are increasingly aware of and concerned about their impact on the environment, the climate and sustainability. As a result, an increasing number of products with 'health, environmental and/or sustainability' claims are on the market. In addition, consumers have concerns about the use of vague terms such as 'natural', 'eco', 'green', or 'sustainable' on product packages have been reported, but at the same time consumers appear to have preferences for 'natural' products [53-55, 59].

The lack of specific regulations governing definitions like 'natural' and 'organic' has resulted in the emergence of private labels to substantiate claims made by companies about the 'natural' or 'organic' status of their products and/or ingredients. As a result, it is difficult for consumers to interpret the variety of labels on the environmental sustainability of products and companies. Companies can give a false impression of their environmental impacts or benefits, which can mislead consumers (a practise known as greenwashing). With the proposed Green Claims Directive, the EU is taking action to address greenwashing, in order to protect consumers and the environment [18]. An example of greenwashing is also shown in the case study in this report (Chapter 3.4) in which two shampoos were compared: the product with health, environmental and/or sustainability claims contained only 1% more ingredients from natural origin.

Regulation governing a definition of 'vegan' is also lacking, but this claim is more straightforward and easier to verify. For example, the widely used label 'Vegan' specifies its requirements as: the manufacture and/or development of the product, and its ingredients, must not involve or have involved, the use of any animal product, by-product or derivative. There is an ISO standard with technical definitions and criteria for natural and organic cosmetic ingredients (ISO 16128 [3]). Although the use of this standard is not legally binding, it is a standardized methodology to calculate the percentage of natural and organic ingredients in a cosmetic product.

In this report it is shown that the leading labels for cosmetic ingredients are COSMOS-standard, NATRUE and Vegan which are well established in the cosmetic ingredients market. COSMOS-standard and NATRUE have similar, but not identical, definitions for organic and/or natural ingredients and for natural and/or organic cosmetic final products and are thus more or less comparable. It is remarkable that EU Ecolabel - which is the official European environmental label - is found only on a few Household products.

6.2 Consumers perspective

Studies show that consumers have a preference for 'natural' products and social media influencers can shape consumer's intentions. As long as the use of products with a claim is safe, there are no reasons for

concern from a toxicological point. However, in this report it is shown that it may be hard for consumers to understand and interpret the labels, claims and difficult words (e.g. hypoallergenic) used on the packaging. A consumer can be (mis)led by statements made by influencers and claims on the product labels. The claim 'non-toxic' was found in one of the investigated products in this study. This can be confusing for a consumer: are comparable products without the claim toxic? What is meant by non-toxic? Is it also non-toxic in the case of misuse?

In the case of the claim 'hypoallergenic', it is mentioned in the Technical Document on cosmetic claims that companies should consider whether consumers understand the claim [14]. If necessary, further information or clarification regarding its meaning should be made available. It is, however, questionable whether an averagely educated consumer understands what the term 'hypoallergenic' means.
It is therefore recommended to perform further research into

- whether consumers understand claims like 'non-toxic' and 'hypoallergenic' on products, and
- whether the claims observed in this study (see Chapter 4.1) comply with the regulations.

Consumers should be further informed on this for instance by giving explanations of complicated terms via an online platform such as Waarzitwatin[34].

6.3 Indications for health risk

The Mintel GNPD was searched for products that were added during the last 3 years, to gain insight in the ingredients of recently released cosmetic products. Although it may result in an incomplete view on the products that are available in the stores now, the results give a useful overview of ingredients in both products with and without 'health, environmental and/or sustainability' claims.

As mentioned in the introduction, it was expected that the chemical composition of products with a 'health, environmental and/or sustainability' claim differs from products without these claims. As shown in the ingredient tables (Annex II and III) both the products with and without a claim have many unique ingredients. The 35 most frequently used ingredients of the 'Beauty & personal care products with claims' were analysed, and 12 of them were selected for further analysis. For boron nitride there is insufficient data to draw clear conclusions on its safety. In the case of squalene, it depends on the source of the ingredient, but there is no health concern when the product is certified vegan. Health concerns on endocrine disrupting properties of benzophenone-3 were considered in a safety assessment by SCCS, leading to a lower maximum concentration. Recently, benzophenone-4 was also assessed by SCCS, the use of BP-4 was considered safe when used as UV filter up to a maximum concentration of 5%. There are purity criteria for CI 77220 (calcium carbonate) that must be complied to. Another point of concern may be the content of

[34] https://waarzitwatin.nl/

aluminum, however this was mainly mentioned in relation to the oral intake via food of calcium carbonate.

The current study shows that products with a 'health, environmental and/or sustainability' claim more often contains botanical ingredients. Botanical additives in cosmetics like plant extracts sound safe as they come from nature. However, as shown for *Achillea millefolium*, *Citrus aurantium amara*, *Citrus grandis*, *Lavandula hybrida*, *Litsea cubeba*, and *Rosmarinus officinalis*, plants may contain constituents of concern (e.g. allergens like linalool and limonene) and frequent use may result in adverse skin reactions. In the case of *Salix alba*, the skin sensitizer salicin is present to a greater or lesser extent. In addition, information on the presence of pesticide residues and heavy metals in botanical ingredients is lacking. Also, the use of several botanical ingredients in one or more products that may contain similar constituents of concern could result in exposures that exceed levels of concern. Furthermore, the classification as well as risk assessment of these ingredients may be lacking because there is often limited data, no or low tonnage REACH registration and/or no harmonized classification. An example from the ingredient list is *Rhus verniciflua*/varnish tree extract, an ingredient that is not classified but the tree is known as poisonous [60]. Such an extended search in other information sources was not performed for other ingredients, but might be considered for future studies.

Additionally, for the human body, it does not matter whether a substance is made by man (synthetic) or obtained from nature. It is the same chemical, made or obtained in a different way. An example of this is the fragrance geraniol which can be extracted from a flower but can also be synthesized. Some people are allergic to fragrances such as geraniol and the appearance of an allergic reaction is independent of the origin of the substance.
Noteworthy, essential oils are considered MOCS (More than One Constituent Substances) under the current CLP regulation [10]. Currently, the CLP regulation is under revision[35], and discussions are ongoing whether essential oils should have to be classified for hazards related to their constituents or based on information of the total MOCS [61].

Although this study does not show direct indications for serious health risks, further research into the use of in particular botanical ingredients in consumer products would be valuable. For example, exposure to several cosmetic and household products (not fully analysed in this study) containing botanical ingredients may result in additive exposure to skin sensitization compounds like linalool and limonene. The lack of classification and risk assessment of many of these botanical ingredients raises concern that health effects may be missed. It could be considered to widen the evaluation to substances without classification, using different information sources, such as structural similarity tools, information on constituents, and botanical information to gain more insight in potential hazards. Furthermore, studies also raise their concern regarding pesticide residues and heavy metals in botanical

[35] https://environment.ec.europa.eu/publications/proposal-clp-revision_en

ingredients which could be further investigated. Additional research could also focus on the validity of environment claims.

6.4 Recommendations

Future research could be focussed on:

- Whether consumers understand claims like 'non-toxic' and 'hypoallergenic' on products.
- Whether the claims observed in this study comply with the regulations.
- The toxicity and composition of botanical ingredients.
- Risk assessment on the use of multiple products with botanical ingredients (additive exposure).
- Pesticide residues and heavy metals in botanical ingredients.
- The toxicity of substances without classification found in products with a health, environmental and/or sustainability claim.

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9 Annex I Details of the types of products in the categories defined by Mintel

The category Beauty & Personal Care includes:

- Absorbent Hygiene[36]
  - Diapers
  - Incontinence Products
  - Nursing Pads
  - Pads
  - Tampons
- Colour Cosmetics
  - Body Colour Cosmetics
  - Eye Colour Cosmetics - Eye Brow
  - Eye Colour Cosmetics - Eye Lash
  - Eye Colour Cosmetics - Eye Liner
  - Eye Colour Cosmetics - Eye Shadow
  - Face Colour Cosmetics – Blush
  - Face Colour Cosmetics – Bronzer
  - Face Colour Cosmetics – Concealer
  - Face Colour Cosmetics - Foundations / Fluid Illuminators
  - Face Colour Cosmetics – Powder
  - Face Colour Cosmetics – Primer
  - Lip Colour Cosmetics - Lip Colour
  - Lip Colour Cosmetics - Lip Liner
  - Multi-Use
  - Nail Colour Cosmetics
- Deodorants
  - Roll-on
  - Spray
  - Stick
  - Wipe
  - Other
- Fragrances
  - Men’s Fragrances
  - Unisex Fragrances
  - Women’s Fragrances
- Hair Products
  - Conditioner
  - Hair Colorants
  - Hair Styling
  - Hair Treatment
  - Shampoo
- Oral Hygiene
  - Dental Ancillaries
  - Mouthwash
  - Toothbrushes
  - Toothpaste
- Shaving & Depilatories
  - Depilatory Products

[36] This sub-category was not included in the search criteria.

    - Razors
    - Shaving Preparations
- Skincare
    - Body Care
    - Eye - Cleansers
    - Eye Care
    - Face - Cleansers
    - Face/Neck Care
    - Foot Care
    - Hand/Nail Care
    - Lip Care
    - Nail Enamel Removers
    - Sets
    - Sun - After Sun
    - Sun - Self-Tanning
    - Sun - Sun/Sunbed Exposure
- Soap & Bath Products
    - Bar Soap
    - Bath Additives
    - Intimate Hygiene
    - Liquid Soap
    - Shower Products
    - Wipes

The category Household includes:

- Air Care
    - Candles
    - Non-Powered Air Fresheners
    - Powered Air Fresheners/Deodorisers
- Cleaning Equipment
    - Shoe Care
    - Sponges, Mops, Dusters & Dry Cloths
- Dishwashing Products
    - Dishwasher Care
    - Dishwashing - Automatic
    - Capsules
    - Liquid
    - Powder
    - Tablet
    - Other
        - Dishwashing - Hand
        - Rinse Aid
- Fabric Care
    - Automatic Detergents
    - Capsules
    - Liquid
    - Powder
    - Tablet
    - Other
        - Bleach/Fabric Brighteners
        - Conditioners & Softeners
        - Fabric Fresheners/Moth Repellents
        - Hand Detergents/Shampoos
        - Ironing Aids

    - Stain/Spot Removal
    - Upholstery/Carpet Care
    - Washing Machine/Iron Care
- Hard Surface Care
    - All-Purpose/Multi-Purpose Surface Care
    - Bath, Shower & Tile Care
    - Bleach/Disinfectant
    - Drain Care
    - Floor Care
    - Furniture Care
    - Glass Care
    - Household Appliance Care
    - Kitchen Care
    - Metal Cleaners
- Home Storage
    - Bags & Containers
    - Disposable Plates & Cups
    - Wraps & Foils
- Paper Products
    - Facial Tissue
    - Kitchen & Multi-Purpose Paper
    - Toilet Tissue (Dry and Wet)
- Pest Control
    - Dust Mites
    - Insect Killers/Repellents
    - Rodenticides
- Toilet Care
    - Toilet (Bowl) Cleaners
    - Toilet (Bowl) Fresheners

10 Annex II Complete list of ingredients in Beauty & personal care products with claims as mentioned in the Mintel GNPD

1,2-hexanediol
1-methylhydantoin-2-imide
2,5-dioxo-4-imidazolidinyl/ urea of allantoin
2-amino-4-hydroxyethylaminoanisole sulfate
2-methylresorcinol
3-hexenol
4-chlororesorcinol
4-terpineol
abies sibirica needle oil
abrus precatorius root extract
acacia concinna
acacia decurrens
acacia decurrens/jojoba/sunflower seed cera/polyglyceryl-3 esters
acacia senegal gum
acacia seyal gum
acer rubrum (red maple) bark extract
acer saccharum extract
acetic acid
acetone
acetum
acetyl carnitine hcl
acetyl cysteine
acetyl methionine
acetyl tetrapeptide-11
acetyl tetrapeptide-3
acetyl tetrapeptide-5
acetyl tetrapeptide-9
acetyl tributyl citrate
achillea asiatica
achillea millefolium (yarrow)
acid red 52
acid violet 43
acmella oleracea extract
acorus calamus root extract
acrylates copolymer
acrylates crosspolymer
acrylates crosspolymer-4
acrylates/beheneth-25 methacrylate copolymer
acrylates/c10-30 alkyl acrylate crosspolymer
acrylates/dimethicone copolymer
acrylates/dimethylaminoethyl methacrylate copolymer
acrylates/ethylhexyl acrylate copolymer
acrylates/hydroxyesters acrylates copolymer
acrylates/octylacrylamide copolymer
acrylates/polytrimethylsiloxymethacrylate copolymer
acrylates/steareth-20 methacrylate copolymer
acrylates/steareth-20 methacrylate crosspolymer
acrylates/stearyl acrylate/dimethicone methacrylate copolymer
acrylates/stearyl acrylate/ethylamine oxide methacrylate copolymer
acrylates/stearyl methacrylate copolymer
acrylates/tris (trimethylsiloxy) silylpropyl methacrylate copolymer
actinidia chinensis (kiwi)
actinidia deliciosa fruit extract
activated carbon (coconut shell powder)
adansonia digitata (baobab)
adansonia grandidieri (baobab)
adenosine
adenosine phosphate
adipic acid/fumaric acid/phthalic acid/tricyclodecane dimethanol copolymer
adipic acid/neopentyl glycol/trimellitic anhydride copolymer
aegle marmelos root extract
aesculus hippocastanum
agar
agastache mexicana flower/leaf/stem extract
agate
agave americana stem extract
agave tequilana
alanine
alaria esculenta (seaweed)
albizia julibrissin (silk tree)
alchemilla vulgaris (lady's mantle)
alcohol
alcohol denat.
alcohols
aleurites moluccana
aleurites moluccanus
algae extract
algin
alkanna tinctoria root extract
allantoin
allium sativum bulb extract
aloe barbadensis (aloe vera)
aloe species resin
alpha-glucan oligosaccharide
alpha-isomethyl ionone
alpinia calcarata rhizome/root extract
althaea officinalis (marshmallow)
althaea rosea flower extract
alumina
aluminium chlorohydrate
aluminum calcium sodium silicate
aluminum hydroxide
aluminum sesquichlorohydrate
aluminum starch octenylsuccinate
aluminum stearate
aluminum tristearate
amaranthus caudatus (amaranth)
amazonite
amber
amethyst powder
aminomethyl propanediol
aminomethyl propanol
aminopropyl dimethicone
ammonium acrylates copolymer
ammonium acryloyldimethyltaurate/vp copolymer
ammonium cocoyl isethionate
ammonium glycyrrhizate
ammonium laureth sulfate
ammonium lauryl sulfate
ammonium polyacryloyldimethyl taurate

amodimethicone
amorphophallus konjac
amorphophallus konjac/glucomannan
amyl cinnamal
amylodextrin
amyris balsamifera bark oil
ananas sativus (pineapple) fruit extract
anethole
angelica archangelica root oil
angelica gigas
anhydroxylitol
aniba rosaeodora wood oil
anionogenic sirfactant agents (potassium lauroyl glycinate) (<5%)
anise alcohol
anthemis nobilis
anthocyanins
anthyllis vulneraria extract
apium graveolens seed extract
aqua
aquafaba (cicer arietinum)
arachidic acid
arachidyl alcohol
arachidyl glucoside
arachis hypogaea oil
araucaria angustifolia seed extract
arctium lappa (burdock)
arctium majus root extract
arctostaphylos uva-ursi (bearberry)
argania spinosa (argan)
argilla
arginine
arginine/lysine polypeptide
arnica chamissonis flower extract
arnica montana (arnica)
aroma
artemisia absinthium
artemisia arctica flower/leaf/stem water*
artemisia capillaris flower extract
artemisia umbelliformis extract
artemisia vulgaris (mugworth) extract
arundinacea root powder
ascophyllum nodosum
ascorbic acid
ascorbyl glucoside
ascorbyl palmitate
ascorbyl tetraisopalmitate
asiatic acid
asiaticoside
aspalathus linearis (rooibos)
aspartic acid
aspergillus/camellia sinensis leaf ferment extract filtrate
astragalus gummifer gum
astrocaryum murumuru seed butter
astrocaryum tucuma seed butter
aureobasidium pullulans ferment extract
avena sativa (oat)
avena sativa bran
avena strigosa seed extract
azadirachta indica
azelaic acid
babassu oil polyglyceryl-4 esters
babassuamidopropyl betaine
bacillus ferment
backhousia citriodora leaf oil
bacopa monnieri
bakuchiol
bambusa arundinacea
bambusa vulgaris
bassia butyracea seed butter
beer
beeswax
behenamidopropyl dimethylamine
beheneth-25
behentrimonium chloride
behentrimonium methosulfate
behenyl alcohol
behenyl behenate
behenyl/octyldodecyl propanediol citrate crosspolymer
bellis perennis flower extract
bentonite
benzalkonium chloride
benzoic acid
benzophenone-1
benzophenone-3
benzophenone-4
benzotriazolyl dodecyl p-cresol
benzyl alcohol
benzyl benzoate
benzyl cinnamate
benzyl glycol
benzyl pca
benzyl salicylate
bertholletia excelsa
beta tocopherol (natural vitamin e)
beta vulgaris
beta-carotene
beta-glucan
betaine
beta-sitosterol
betula alba (birch)
bha
bht
bidens tripartita flower/leaf/stem water
bifida ferment lysate
biosaccharide gum-1
biosaccharide gum-4
biotin
biotinoyl tripeptide-1
bis-(isostearoyl/oleoyl isopropyl) dimonium methosulfate
bisabolol
bis-behenyl/isostearyl/phytosteryl dimer dilinoleyl dimer dilinoleate
bis-diglyceryl polyacyladipate-1
bis-diglyceryl polyacyladipate-2
bis-ethoxydiglycol cyclohexane 1,4-dicarboxylate
bis-ethyl(isostearylimidazoline) isostearamide
bis-ethylhexyl hydroxydimethoxy benzylmalonate
bis-ethylhexyloxyphenol methoxyphenyl triazine
bis-hydroxy/methoxy amodimethicone
bixa orellana seed extract
borago officinalis
boron nitride
boswellia carterii
boswellia serrata
boswellia sp. (frankinsence)
brassica alcohol
brassica campestris
brassica campestris/aleurites fordii oil copolymer
brassica napus seed oil
brassica nigra seed oil
brassica oleracea acephala
brassica oleracea italica (broccoli)
brassicamidopropyl dimethylamine
brassicyl isoleucinate esylate
bromelain
buddleja davidii (butterfly bush)
buddleja officinalis (butterfly lilac)
bulnesia sarmientoi extract
bursera graveolens wood oil
butane
butea monosperma extract

buteth-3
butyl acetate
butyl methoxydibenzoylmethane
butylene glycol
butylene glycol cocoate
butylene glycol dicaprylate/dicaprate
butyloctanoic acid
butyloctyl salicylate
butylphenyl methylpropional
butyrospermum parkii (shea)
c10-18 triglycerides
c10-40 isoalkylamidopropylethyldimonium ethosulfate
c11-15 alketh-7
c11-15 pareth-40
c12-13 alcohols
c12-13 alkyl lactate
c12-14 pareth-12
c12-15 alkyl benzoate
c12-15 alkyl lactate
c12-18 acid triglyceride
c12-20 alkyl glucoside
c13-14 isoalkane
c13-15 alkane
c14-22 alcohols
c15-19 alkane
c15-23 alkane
c18-21 alkane
c18-36 acid glycol ester
c18-36 acid triglyceride
c20-22 alcohols
c20-22 alkyl phosphate
c20-40 acid
c20-40 alcohols
c24-28 alkyldimethylsiloxy trimethylsiloxysilicate
c30-45 alkyl dimethicone
c9-12 alkane
caesalpinia sappan bark extract
caesalpinia spinosa
caffeine
calamine
calcite
calcium alginate
calcium aluminum borosilicate
calcium bentonite clay
calcium chloride
calcium citrate
calcium gluconate
calcium pantothenate
calcium pca
calcium pyrophosphate
calcium silicate
calcium sodium borosilicate
calcium titanium borosilicate
calendula officinalis
calluna vulgaris (heather)
calophyllum inophyllum seed oil
camelina sativa seed oil
camellia japonica
camellia oleifera
camellia sinensis
camphor
cananga odorata (ylang ylang)
canarium luzonicum (elemi)
candelilla cera (euphorbia cerifera)
candelilla/jojoba/rice bran polyglyceryl-3 esters
cannabidiol
cannabis sativa
canola
caprae lac
capric acid
capryl/capramidopropyl betaine
caprylhydroxamic acid
caprylic acid
caprylic/capric triglyceride
caprylic/capric triglyceride (coconut)
capryloyl glycerin/sebacic acid copolymer
capryloyl glycine
caprylyl (capryl) glucoside (vegetable cleaner)
caprylyl glucoside
caprylyl glyceryl ether
caprylyl glycol
caprylyl methicone
caprylyl/capryl glucoside
caprylyl/capryl wheat bran/straw glycosides
capsicum annuum (pepper)
caramel
carapa guaianensis seed oil
carbomer
carboxylic acids
cardiospermum halicacabum flower/leaf/vine extract
carica papaya
carnelian
carnosine
carrageenan (chondrus crispus)
carthamus tinctorius (safflower)
carum petroselinum
carvone
cassia angustifolia seed polysaccharide
cassia hydroxypropyltrimonium chloride
castor oil (sodium castorate)
castoryl maleate
cedrol
cedrol methyl ether
cedrus atlantica
cedrus deodara
cellulose
cellulose acetate
cellulose gum
centaurea cyanus (cornflower)
centella asiatica (pennywort)
cera microcristallina
ceramide ng
ceramide np
ceratonia siliqua (carob) gum
ceresin
cereus grandiflorus (cactus) flower extract
cerevisia beer
ceteareth-12
ceteareth-20
cetearyl alcohol
cetearyl ethylhexanoate
cetearyl glucoside
cetearyl isononanoate
cetearyl nonanoate
cetearyl olivate
cetearyl wheat straw glycosides
ceteth-10 phosphate
ceteth-20
cetraria islandica (iceland moss)
cetrimonium bromide
cetrimonium chloride
cetrimonium methosulfate
cetyl alcohol
cetyl dimethicone
cetyl esters
cetyl ethylhexanoate
cetyl palmitate
cetyl peg/ppg-10/1 dimethicone
cetyl phosphate
cetyl ricinoleate
cetyl stearate
cetylpyridinium chloride
chalcedony
chamaecyparis obtusa
chamomilla recutita (chamomile)
charcoal (carbon)
chelidonium majus extract
chenopodium quinoa (quinoa)

chiastolite
chlorella vulgaris
chlorhexidine digluconate
chlorophyllin-copper complex
chlorphenesin
chondrus crispus
chouji yu
chromium hydroxide green
chrysin
chrysoprase
ci 10316
ci 11680
ci 12490
ci 13015
ci 14700
ci 14720
ci 15510
ci 15985
ci 16035
ci 16185
ci 16255
ci 17200
ci 18965
ci 19140
ci 28440
ci 40800
ci 42051
ci 42053
ci 42090
ci 45410
ci 47005
ci 51319
ci 60725
ci 60730
ci 61565
ci 61570
ci 61585
ci 73360
ci 74160
ci 74260
ci 75130
ci 75300
ci 75470
ci 75810
ci 77002
ci 77007
ci 77120
ci 77163
ci 77220
ci 77266
ci 77288
ci 77480
ci 77491
ci 77492
ci 77499 (black 11)
ci 77713
ci 77742
ci 77820
ci 77892
cicer arietinum seed extract
cimicifuga racemosa root extract
cinchona succirubra bark extract
cinnamal
cinnamic acid
cinnamomum camphora
cinnamomum cassia
cinnamomum zeylanicum
cinnamyl alcohol
citral
citrates
citric acid
citrine
citronellal
citronellol
citronellyl methylcrotonate
citrullus colocynthis seed oil
citrullus lanatus (watermelon)
citrus aurantifolia (lime)
citrus aurantium amara
citrus aurantium bergamia
citrus aurantium dulcis (orange)
citrus aurantium sinensis peel oil
citrus bergamia peel oil expressed
citrus grandis
citrus limon (lemon)
citrus medica limonum
citrus nobilis
citrus paradisi (grapefruit)
citrus reticulata
citrus sinensis (orange)
citrus tangerina
citrus unshiu peel extract
clitoria ternatea flower extract
cocamide dea
cocamide mea
cocamide mipa
cocamidopropyl
cocamidopropyl betaine
cocamidopropyl hydroxysultaine
cocamidopropyl pg-dimonium
chloride phosphate
coccinia indica fruit extract
cochlearia armoracia root extract
coco-betaine
coco-caprylate
coco-caprylate/caprate
cocodimonium hydroxypropyl
hydrolyzed wheat protein
coco-glucoside
cocoglycerides
cocomono
coconut acid
coconut alcohol
coconut alkanes
coconut flower sugar
coconut milk
cocos nucifera (coconut)
cocoyl methyl glucamide
coffea arabica (coffee)
coffea robusta
collagen
collagen amino acids
collodion
colophonium
commiphora abyssinica resin extract
commiphora myrrha
copaifera officinalis resin
copernicia cerifera cera
copper gluconate
copper pca
corallina officinalis extract
coriandrum sativum (coriander)
corn oil (corn acid)
corn pla floss*^
corylus avellana
cosmetic colorant
cosmetic flavouring
coumarin
crambe maritima leaf extract
cramble abyssinica (abyssinian kale) seed oil phytosterol esters
creatine
crithmum maritimum extract
crocus sativus flower extract
croscarmellose
croton lechleri (dragons blood) resin extract
cryptomeria japonica leaf extract
cucumis melo (melon) fruit extract
cucumis sativus (cucumber)
cucurbita moschata fruit powder
cucurbita pepo
cupressus funebris wood oil
cupressus sempervirens (cypress)
curcuma aromatica root oil
curcuma longa (turmeric)
curcuma zedoaria root oil
cv 1706501
cyamopsis tetragonoloba gum
cyanocobalamin

cyclohexasiloxane
cyclomethicone
cyclopentasiloxane
cydonia oblonga (quince)
cylindrotheca fusiformis (plankton)
cymbopogon citratus
cymbopogon flexuosus
cymbopogon martini
cymbopogon nardus oil
cymbopogon schoenanthus
cymbopogon winterianus leaf oil
cyperus rotundus fruit extract
cyperus scariosus root extract
dalbergia sissoo
darutoside
dasiphora fruticosa water
daucus carota sativa (carrot)
decanal
decyl cocoate
decyl glucoside
decyl oleate
decylene glycol
dehydroacetic acid
dehydroxanthan gum
delta tocopherol (natural vitamin e)
denatonium benzoate
desmodium gangeticum root extract
dextran
dextrin
diacetone alcohol
diacetyl
diacetyl boldine
diaminopropionoyl tripeptide-33
diammonium citrate
diamond powder
diazolidinyl urea
dibutyl adipate
dicalcium phosphate
dicaprylyl carbonate
dicaprylyl ether
dicetyl phosphate
dicetyldimonium chloride
dichlorobenzyl alcohol
diethyl sebacate
diethyl succinate
diethylamino hydroxybenzoyl hexyl benzoate
diethylhexyl butamido triazone
diethylhexyl carbonate
diethylhexyl sodium sulfosuccinate
diethylhexyl syringylidenemalonate
diglycerin
diheptyl succinate
dihydroxyacetone
dihydroxypropyl arginine hcl
dihydroxypropyl peg-5 linoleammonium chloride
diisopropyl sebacate
diisostearoyl polyglyceryl-3 dimer dilinoleate
diisostearyl malate
dilauryl thiodipropionate
dimer dilinoleyl dimer dilinoleate
dimethicone
dimethicone crosspolymer
dimethicone peg-8 polyacrylate
dimethicone propyl pg-betaine
dimethicone/methicone copolymer
dimethicone/peg-10/15 crosspolymer
dimethicone/vinyl dimethicone crosspolymer
dimethiconol
dimethiconol stearate
dimethyl adipate
dimethyl glutarate
dimethyl isosorbide
dimethyl palmitamine
dimethyl succinate
dimethylheptenal
dimethylimidazolidinone rice starch
dimethylmethoxy chromanol
diospyros kaki (kaki) leaf extract
dipalmitoyl hydroxyproline
dipalmitoylethyl hydroxyethylmonium methosulfate
dipentaerythrityl hexahydroxystearate
dipotassium glycyrrhizate
dipotassium phosphate
dipropylene glycol
dipropylene glycol dibenzoate
dipterocarpus turbinatus balsam oil
dipteryx odorata
disiloxane
disodium 2-sulfolaurate
disodium cetearyl sulfosuccinate
disodium cocoamphodiacetate
disodium coco-glucoside citrate
disodium cocoyl glutamate
disodium edta
disodium edta-copper
disodium hydrogen phosphate dihydrate
disodium laureth sulfosuccinate
disodium lauryl sulfosuccinate
disodium methylene dinaphthalenesulfonate
disodium phosphate
disodium pyrophosphate
disodium stearoyl glutamate
distarch phosphate
disteardimonium hectorite
distearoylethyl dimonium chloride
distearoylethyl hydroxyethylmonium methosulfate
distearyl ether
distearyldimonium chloride
dmdm hydantoin
dodecane
dunaliella salina extract
echinacea purpurea (coneflower)
echium plantagineum seed oil
ecklonia cava extract
eclipta alba
eclipta prostrata (false daisy)
ectoin
eichhornia crassipes extract
elaeis guineensis (palm)
elettaria cardamomum
emblica officinalis (amla)
emerald
enantia chlorantha bark extract
enteromorpha compressa extract
epigallocatechin gallate
epilobium angustifolium
epoxidized soybean oil
equisetum arvense (horsetail)
equisetum hiemale (horsetail)
ergocalciferol
eriophorum spissum flower/stem extract
erythritol
erythrulose
escin
ethanolamine
ethoxydiglycol
ethyl acetate
ethyl ascorbic acid
ethyl ferulate
ethyl lactate
ethyl lauroyl arginate hcl
ethyl macadamiate

ethyl vanillin
ethylcellulose
ethylene/propylene copolymer
ethylhexyl hydroxystearate
ethylhexyl isononanoate
ethylhexyl methoxycinnamate
ethylhexyl palmitate
ethylhexyl salicylate
ethylhexyl stearate
ethylhexyl triazone
ethylhexylglycerin
ethylparaben
etocrylene
eucalyptus citriodora
eucalyptus globulus
eugenia caryophyllus (clove)
eugenol
euphorbia cerifera cera
euphrasia officinalis extract
euterpe oleracea (acai)
evernia furfuracea (treemoss)
extract
evernia prunastri (oakmoss)
extract
evodia rutaecarpa fruit extract
faex extract
fagraea berteroana flower extract
fagus sylvatica bud extract
farnesene
farnesol
ficus carica (fig)
foeniculum vulgare (fennel)
folic acid
formic acid
fragaria ananassa
fragaria vesca juice
fragrance of vanilla and mandarin
fraxinus excelsior bark extract
fructooligosaccharides
fructose
fructosyl cocoate/olivate
fucus serratus extract
fucus vesiculosus (bladderwarck
seaweed)
fumaric acid
furcellaria lumbricalis extract
fusanus spicatus wood oil
galactoarabinan
galium verum extract
gallic acid
gamma tocopherol (natural
vitamin e)
garcinia mangostana
(mangosteen)
gardenia jasminoides
gardenia tahitensis
gaultheria procumbens
gaultheria procumbens leaf oil
gelidium sesquipedale extract
gellan gum
genipa americana fruit extract
genipin
gentiana lutea root extract
geraniol
geranium maculatum extract
geranium sibiricum extract
geranyl acetate
ginkgo biloba leaf extract
globularia cordifolia callus culture
extract
glucomannan
gluconic acid
gluconolactone
glucose
glucuronic acid
glutamic acid
glycereth-2 cocoate
glycereth-25 pca isostearate
glycereth-26
glycereth-7 caprylate/caprate
glycerin
glycerophosphocholine
glyceryl acrylate/acrylic acid
copolymer
glyceryl arachidonate
glyceryl behenate
glyceryl behenate/eicosadioate
glyceryl caprate
glyceryl caprylate
glyceryl caprylate (vegetable)
glyceryl caprylate/caprate
glyceryl citrate crosspolymer
glyceryl
citrate/lactate/linoleate/oleate
glyceryl dibehenate
glyceryl distearate
glyceryl
ethylhexanoate/stearate/adipate
glyceryl hydroxystearate
glyceryl isostearate
glyceryl laurate
glyceryl linoleate
glyceryl linolenate
glyceryl oleate
glyceryl oleate citrate
glyceryl polyacrylate
glyceryl ricinoleate
glyceryl rosinate
glyceryl stearate
glyceryl stearate citrate
glyceryl stearate se
glyceryl undecylenate
glycine
glycine soja extract
glycine soja germ extract
glycine soja oil
glycine soja oil unsaponifiables
glycine soja protein
glycine soja seed extract
glycine soja sterol
glycogen
glycol copolymer
glycol distearate
glycol palmitate
glycol stearate
glycolic acid
glycolipids
glycoproteins
glycosphingolipids
glycyrrhetinic acid
glycyrrhiza glabra leaf extract
glycyrrhiza glabra root extract
glycyrrhiza uralensis root extract
glyoxal
gmelina arborea root extract
gossypium herbaceum (cotton)
gossypium hirsutum (cotton) seed
extract
guaiazulene
guar hydroxypropyltrimonium
chloride
hamamelis virginiana (witch
hazel)
hbiscus sabdariffa flower powder
hdi/trimethylol hexyllactone
crosspolymer
hectorite
hedera helix (ivy) leaf extract
hedychium coronarium root
extract
hedychium spicatum extract
helianthus annuus (sunflower)
helichrysum angustifolium flower
oil
helichrysum italicum flower
extract
hemidesmus indicus root extract
heptanol
heptapeptide-15 palmitate
heptyl glucoside
heptyl undecylenate
hexanal

hexanediol
hexanoyl dipeptide-3 norleucine acetate
hexapeptide-11
hexyl acetate
hexyl cinnamal
hexyl laurate
hexyl salicylate
hexylene glycol
hexylresorcinol
hibiscus abelmoschus seed extract
hibiscus rosa-sinensis flower powder
hibiscus sabdariffa
himanthalia elongata (thongweed) extract
hippophae rhamnoides (sea buckthorn)
histidine
homosalate
hordeum distichon extract
hordeum vulgare
houttuynia cordata extract
humulus lupulus (hop)
hyaluronic acid
hydrastis canadensis root extract
hydrated silica
hydrochloric acid
hydrogen dimethicone
hydrogen peroxide
hydrogenated acetophenone/oxymethylene copolymer
hydrogenated apricot kernel oil
hydrogenated avocado oil/butter
hydrogenated castor oil
hydrogenated castor oil behenyl esters
hydrogenated castor oil/sebacic acid copolymer
hydrogenated cetyl olive esters
hydrogenated coco-glycerides
hydrogenated coconut oil
hydrogenated dilinoleyl alcohol
hydrogenated ethylhexyl olivate
hydrogenated jojoba oil
hydrogenated jojoba wax
hydrogenated lecithin
hydrogenated olive oil
hydrogenated olive oil unsaponifiables
hydrogenated palm glyceride citrate*
hydrogenated palm glycerides citrate
hydrogenated palm kernel glycerides
hydrogenated polycyclopentadiene
hydrogenated polydecene
hydrogenated polyisobutene
hydrogenated rapeseed oil
hydrogenated soy polyglycerides
hydrogenated soybean oil
hydrogenated starch hydrolysate
hydrogenated stearyl olive esters
hydrogenated styrene/isoprene copolymer
hydrogenated styrene/methyl styrene/indene copolymer
hydrogenated tetradecenyl/methylpentadecene
hydrogenated vegetable glycerides
hydrogenated vegetable glycerides citrate
hydrogenated vegetable oil
hydrolysed adansonia digitata extract
hydrolyzed agave tequilana stem extract
hydrolyzed algin
hydrolyzed beeswax
hydrolyzed caesalpinia spinosa gum
hydrolyzed carrot protein
hydrolyzed ceratonia siliqua seed extract
hydrolyzed corn protein
hydrolyzed corn starch
hydrolyzed corn starch octenylsuccinate
hydrolyzed gardenia florida extract
hydrolyzed glycosaminoglycans
hydrolyzed hyaluronic acid
hydrolyzed jojoba esters
hydrolyzed kale protein
hydrolyzed lemon protein
hydrolyzed lepidium meyenii root
hydrolyzed linseed extract
hydrolyzed oat protein
hydrolyzed pea protein
hydrolyzed pearl
hydrolyzed quinoa
hydrolyzed rhodophycea extract
hydrolyzed rice protein
hydrolyzed soy protein
hydrolyzed starch
hydrolyzed triticum monococcum seed extract
hydrolyzed vegetable protein
hydrolyzed vegetable protein pg-propyl silanetriol
hydrolyzed wheat gluten
hydrolyzed wheat protein
hydrolyzed wheat protein pg-propyl silanetriol
hydrolyzed wheat starch
hydrolyzed yeast protein
hydroxyacetophenone
hydroxycitronellal
hydroxycitronellol
hydroxyethyl acrylate/sodium acryloyldimethyl taurate copolymer
hydroxyethyl ethylcellulose
hydroxyethyl urea
hydroxyethylcellulose
hydroxymethoxyphenyl decanone
hydroxyphenyl propamidobenzoic acid
hydroxypropyl cyclodextrin
hydroxypropyl guar
hydroxypropyl guar
hydroxypropyltrimonium chloride
hydroxypropyl methylcellulose
hydroxypropyl oxidized starch pg-trimonium chloride
hydroxypropyl starch phosphate
hydroxypropylammonium gluconate
hydroxypropylcellulose
hydroxypropylgluconamide
hydroxypropyltrimonium hyaluronate
hydroxystearic acid
hydroxystearic/linolenic/oleic polyglycerides
hylocereus undatus fruit extract
hypericum erectum flower/leaf/stem extract
hypericum perforatum (st. john's wort/hypericum)
hyssopus officinalis extract
ilex paraguariensis (mate)
illicium verum (anise)
illite (yellow clay)
imperata cylindrica root extract
indigofera tinctoria leaf extract
infused
inositol

inulin
inulin lauryl carbamate
iodopropynyl butylcarbamate
ionone
ipomoea batatas (potato)
iris florentina
iris germanica root extract
iron oxide
irvingia gabonensis kernel butter
isoamyl cocoate
isoamyl laurate
isoamyl p-methoxycinnamate
isobutane
isobutyl acetate
isoceteth-10
isoceteth-20
isocetyl palmitate
isocetyl stearoyl stearate
isodecyl neopentanoate
isododecane
isoeugenol
isohexadecane
isoleucine
isomalt
isomerized linoleic acid
isononyl isononanoate
isopentane
isopentyldiol
isopropyl alcohol
isopropyl isostearate
isopropyl lauroyl sarcosinate
isopropyl myristate
isopropyl palmitate
isopropyl titanium triisostearate
isostearamide mipa
isostearic acid
isostearyl alcohol
isostearyl hydroxystearate
isostearyl isostearate
isostearyl neopentanoate
isostearyl sebacate
jania rubens extract
jasminum officinale (jasmine)
jasminum sambac flower extract
jatropha mahafalensis seed oil
jojoba alcohol
jojoba esters
juglans regia
juniperus chinensis (juniper)
juniperus communis (juniper)
juniperus mexicana
juniperus phoenicea wood oil rectified
juniperus virginiana
justicia adhatoda leaf extract
kalanchoe daigremontiana
kaolin
kigelia africana fruit extract
kniphofia uvaria nectar
lactic acid
lactic acid/glycolic acid copolymer
lactitol
lactobacillus
lactobacillus/aspergillus/prunus mume fruit ferment filtrate
lactobacillus/coconut fruit juice ferment filtrate
lactobacillus/dipteryx odorata seed ferment filtrate
lactobacillus/hibiscus sabdariffa flower ferment filtrate
lactobacillus/papaya fruit ferment extract
lactobacillus/wasabia japonica root ferment extract
lactococcus ferment extract
lactose
laminaria digitata
laminaria japonica extract
laminaria saccharina extract
lamium album extract
lanolin
lapsana communis flower/leaf/stem extract
larix sibirica needle extract
laurdimonium hydroxypropyl hydrolyzed wheat protein
laureth-10
laureth-12
laureth-2
laureth-21
laureth-23
laureth-3
laureth-4
laureth-4 carboxylic acid
laureth-5 carboxylic acid
laureth-6 carboxylic acid
laureth-7
laureth-7 citrate
lauric acid
lauroyl lysine
lauroyl/myristoyl methyl glucamide
laurus nobilis fruit oil
lauryl acrylate crosspolymer
lauryl alcohol
lauryl betaine
lauryl dimethicone
lauryl glucoside
lauryl hydroxysultaine
lauryl lactate
lauryl laurate
lauryl methacrylate/glycol dimethacrylate crosspolymer
lauryl olivate
lauryl peg/ppg-18/18 methicone
lauryl peg-10 tris(trimethylsiloxy)silylethyl dimethicone
lavandula angustifolia (lavender)
lavandula hybrida
lavender oil
lawsonia inermis (henna)
lecithin
lentinus edodes (shiitake mushroom) extract
leontopodium alpinum
leptospermum petersonii oil
leptospermum scoparium branch/leaf oil
leuconostoc/radish root ferment filtrate
levulinic acid
lilium candidum bulb extract
limnanthes alba seed oil
limonene
limonium gerberi extract
limonium vulgare flower/leaf/stem extract
linalool
linoleic acid
linolenic acid
linum usitatissimum (linseed)
lithium magnesium sodium silicate
lithospermum erythrorhizon root extract
lithospermum officinale root extract
lithothamnion calcareum extract
litsea cubeba
l-limonene
lonicera caprifolium (honeysuckle)
lonicera japonica (honeysuckle)
luffa cylindrica fruit
lychee (litsea cubeba) oil
lycium barbarum fruit extract
lycium chinense fruit extract
lysine
lysine cocoate
lysine hcl
lysolecithin
macadamia integrifolia seed oil

macadamia seed oil polyglyceryl-6 esters behenate
macadamia ternifolia seed oil
macrocystis pyrifera
madecassic acid
madecassoside
magnesium aluminum silicate
magnesium ascorbyl phosphate
magnesium aspartate
magnesium carbonate hydroxide
magnesium chloride
magnesium citrate
magnesium hydroxide
magnesium myristate
magnesium nitrate
magnesium oxide
magnesium palmitate
magnesium pca
magnesium silicate
magnesium stearate
magnesium sulfate
magnesium sulphate eptahydrate
magnolia officinalis bark extract
malachite extract
malic acid
malpighia emarginata fruit extract
malpighia glabra (acerola)
malt extract
maltitol
maltodextrin
maltol
maltose
malva sylvestris (mallow)
m-aminophenol
mangifera indica
manihot utilissima starch
mannitol
mannose
maranta arundinacea
maris aqua
maris sal
marrubium vulgare extract
mauritia flexuosa fruit oil
mel
melaleuca alternifolia
melaleuca viridiflora leaf oil
melia azadirachta (neem)
melilotus albus flower/leaf/stem extract
melilotus officinalis (sweet clover)
melissa officinalis (balm mint/lemon balm)
mentha aquatica
mentha arvensis
mentha australis leaf extract
mentha piperita (peppermint)
mentha rotundifolia leaf extract
mentha spicata
mentha viridis
menthol
menthone glycerin acetal
menthyl acetate
menthyl lactate
menyanthes trifoliata extract
methicone
methoxy peg/ppg-7/3 aminopropyl dimethicone
methyl benzoate
methyl diisopropyl propionamide
methyl gluceth-10
methyl gluceth-20
methyl glucose dioleate
methyl glucose sesquistearate
methyl hydrogenated rosinate
methyl methacrylate crosspolymer
methyl perfluorobutyl ether
methyl perfluroisobutyl ether
methyl soyate
methyl trimethicone
methylcellulose
methylchloroisothiazolinone
methylene bis-benzotriazolyl tetramethylbutylphenol
methylisothiazolinone
methylparaben
methylpropanediol
metrosideros excelsa (pohutukawa)
mica
michelia alba flower oil
microcitrus australasica fruit extract
microcrystalline cellulose
mimosa tenuiflora leaf extract
mineral salts
mint flavour
mipa-laureth sulfate
molasses extract
montmorillonite
moringa oleifera
moringa pterygosperma seed extract
moroccan lava clay
morus alba (mulberry)
morus nigra fruit extract
musa paradisiaca fruit juice
musa sapientum fruit extract
mustard seed oil
myrciaria dubia (camu camu)
myrica cerifera fruit cera
myrica pubescens fruit cera
myristamidopropyl pg-dimonium chloride phosphate
myristic acid
myristica fragrans extract
myristoyl hexapeptide-16
myristoyl pentapeptide-17
myristyl alcohol
myristyl lactate
myristyl myristate
myroxylon pereirae oil
myrtrimonium bromide
myrtus communis leaf water
n,n-bis(2-hydroxyethyl)-p-phenylenediamine sulfate
nardostachys jatamansi
nasturtium officinale (watercress)
natriumoxydihydrat
n-butyl alcohol
nelumbium speciosum flower extract
nelumbo nucifera
neopentyl glycol diheptanoate
nereocystis luetkeana extract
n-hydroxysuccinimide
niacin
niacinamide
nigella sativa
nitrogen
non-ionogenic surfactant agents (5-15%) (coco-glucoside)
nyctanthes arbor-tristis flower extract
nylon-12
nymphaea caerulea flower extract
nymphaea lotus flower extract
nymphaea stellata flower extract
oakmoss (evernia prunastri) extract
ocimum basilicum
ocimum sanctum
ocimum tenuiflorum extract
octadecyl di-t-butyl-4-hydroxyhydrocinnamate
octenidine hcl
octocrylene
octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer
octyldodecanol
octyldodecyl citrate crosspolymer
octyldodecyl myristate
octyldodecyl neopentanoate

octyldodecyl stearoyl stearate
o-cymen-5-ol
oenocarpus bataua fruit oil
oenothera biennis (evening primerose)
olea europaea (olive)
oleanolic acid
oleic acid
oleic/linoleic/linolenic polyglycerides
oleth-5
oleyl erucate
olive oil glycereth-8 esters
olive oil polyglyceryl-6 esters
olus oil
onosma hispidum extract
opuntia ficus indica
orbignya oleifera seed oil
orbignya speciosa kernel oil
organic almond (prunus dulcis) butter
organic cashew (anacardium occidentale) butter
organic cymbopogon (lemongrass) extract and organic aloe barbadensis leaf extract
organic passiflora incarnata (passion) fruit extract
organic pumpkin (cucurbita pepo) seed butter
organic rosmarinus officinalis (rosemary) leaf extract and organic robus ideous (rapsberyry) leaf extract
origanum dictamnus flower/leaf/stem extract
origanum majorana
origanum vulgare
ormenis multicaulis
oroxylum indicum root extract
oryza sativa
oryzanol
oxidized polyethylene
oxycoccus palustris seed oil
ozokerite
paeonia lactiflora (peonia)
paeonia officinalis flower extract
paeonia suffruticosa root extract
palm kernel acid
palmaria palmata extract
palmitamidopropyltrimonium chloride
palmitic acid
palmitic/stearic triglyceride
palmitoyl grape seed extract
palmitoyl myristyl serinate
palmitoyl tetrapeptide-7
palmitoyl tripeptide-1
palmitoyl tripeptide-38
palmitoyl tripeptide-5
palmitoyl tripeptide-7
panax ginseng
panicum miliaceum (millet)
p-anisic acid
panthenol
panthenyl triacetate
pantolactone
papain
papaver rhoeas extract
papaver somniferum
paraffin
paraffinum liquidum
parfum
parfum (citrus aurantium (neroli light) essential oil)
parfum (natural almond fragrance)
parfum (natural cherry blossom fragrance)
parfum (natural essential oils)
parfum tocopherol
passiflora edulis
passiflora incarnata flower extract
paullinia cupana
pavlova lutheri (micro algae)
pca
pca ethyl cocoyl arginate
pca glyceryl oleate
peat moss extract
pectin
peg/ppg-116/66 copolymer
peg/ppg-120/10 trimethylpropane trioleate
peg/ppg-18/18 dimethicone
peg-10 dimethicone
peg-10 isostearate
peg-100 stearate
peg-12
peg-12 dimethicone
peg-120 methyl glucose dioleate
peg-120 methyl glucose tiroleate
peg-120 methyl glucose trioleate
peg-14m
peg-150 distearate
peg-150 pentaerythrityl tetrastearate
peg-150 stearate
peg-18 glyceryl oleate/cocoate
peg-180
peg-2 oleamine
peg-20 glyceryl laurate
peg-20 glyceryl triisostearate
peg-20 methyl glucose sesquistearate
peg-20 stearate
peg-200 hydrogenated glyceryl palmate
peg-240/hdi copolymer bis-decyltetradeceth-20 ether
peg-3 distearate
peg-30 dipolyhydroxystearate
peg-32
peg-4
peg-4 distearyl ether
peg-4 rapeseedamide
peg-40
peg-40 castor oil
peg-40 hydrogenated castor oil
peg-40 sorbitan peroleate
peg-40 stearate
peg-55 propylene glycol oleate
peg-6
peg-6 caprylic/capric glycerides
peg-60 hydrogenated castor oil
peg-7
peg-7 glyceryl cocoate
peg-75 shea butter glycerides
peg-75 stearate
peg-8
peg-8/smdi copolymer
peg-8/smdi palmitoyl myristyl serinate
peg-9 cocoglycerides
peg-90
peg-90m
pelargonium graveolens
pelargonium roseum leaf oil
pelvetia canaliculata extract
pentaclethra macroloba seed oil
pentadecalactone
pentaerythrityl distearate
pentaerythrityl stearate/caprate/caprylate/adipate
pentaerythrityl tetracaprylate/tetracaprate
pentaerythrityl tetra-di-t-butyl hydroxyhydrocinnamate
pentaerythrityl tetraisostearate
pentasodium pentetate
pentasodium triphosphate
pentylene glycol

perfluorohexylethyl triethoxysilane
perilla frutescens leaf extract
perilla ocymoides
perlite
persea gratissima (avocado)
petrolatum
petroselinum crispum extract
peucedanum graveolens extract
phaseolus radiatus seed extract
phellinus linteus extract
phellodendron amurense bark extract
phenethyl alcohol
phenoxyethanol
phenyl trimethicone
phenylalanine
phenylbenzimidazole sulfonic acid
phenyllactic acid
phenylpropanol
phosphatidylglycerol
phospholipids
phosphoric acid
phragmites kharka
phthalic anhydride/glycerin/glycidyl decanoate copolymer
phthalic anhydride/trimellitic anhydride/glycols copolymer
phyllanthus emblica (indian gooseberry)
phyllostachys bambusoides extract
phyllostachys nigra extract (black bamboo)
phytantriol
phytic acid
phytosterols
phytosteryl isostearate
picea abies (spruce)
picea obovata needle extract
pichia ferment lysate filtrate
pigment red 101
pigment yellow 42
pimpinella anisum
pinus cembra twig leaf oil
pinus palustris leaf extract
pinus pinaster
pinus sibirica
pinus strobus (white pine)
pinus sylvestris
piper longum fruit extract
piper nigrum (black pepper)
piroctone olamine
pistacia lentiscus gum
pisum sativum (pea)
plankton extract
plantago lanceolata (plantain)
plantago major
plantago psyllium
platonia insignis seed butter
plukenetia volubilis seed oil
plumeria alba flower extract
plumeria rubra flower extract
pogostemon cablin
polianthes tuberosa extract
poloxamer 101
poloxamer 122
poloxamer 124
poloxamer 184
poloxamer 188
polyacrylamide
polyacrylate crosspolymer-11
polyacrylate crosspolymer-6
polyacrylate-13
polyamide-8
polybutene
polyester-37
polyester-5
polyethylene
polyethylene terephthalate
polyglycerin-10
polyglycerin-3
polyglycerin-6
polyglyceryl-10 dioleate
polyglyceryl-10 eicosanedioate/tetradecanedioate
polyglyceryl-10 heptahydroxystearate
polyglyceryl-10 isostearate
polyglyceryl-10 laurate
polyglyceryl-10 myristate
polyglyceryl-10 stearate
polyglyceryl-2 caprate
polyglyceryl-2 diisostearate
polyglyceryl-2 dipolyhydroxystearate
polyglyceryl-2 isostearate/dimer dilinoleate copolymer
polyglyceryl-2 triisostearate
polyglyceryl-3 beeswax
polyglyceryl-3 caprate
polyglyceryl-3 caprate/caprylate/succinate
polyglyceryl-3 caprylate
polyglyceryl-3 cetyl ether olivate/succinate
polyglyceryl-3 cocoate
polyglyceryl-3 dicitrate/stearate
polyglyceryl-3 diisostearate
polyglyceryl-3 distearate
polyglyceryl-3 methylglucose distearate
polyglyceryl-3 palmitate
polyglyceryl-3 pca
polyglyceryl-3 polyricinoleate
polyglyceryl-3 rice branate
polyglyceryl-3 ricinoleate
polyglyceryl-3 stearate
polyglyceryl-3 stearate se
polyglyceryl-3-polyricinoleate (vegetable)
polyglyceryl-4 caprate
polyglyceryl-4 caprylate
polyglyceryl-4 cocoate
polyglyceryl-4 diisostearate/polyhydroxystearate /sebacate
polyglyceryl-4 isostearate
polyglyceryl-4 laurate
polyglyceryl-4 laurate/sebacate
polyglyceryl-4 laurate/succinate
polyglyceryl-4 oleate
polyglyceryl-6 behenate
polyglyceryl-6 caprylate
polyglyceryl-6 caprylate/caprate
polyglyceryl-6 dioleate
polyglyceryl-6 distearate
polyglyceryl-6 laurate
polyglyceryl-6 oleate
polyglyceryl-6 palmitate/succinate
polyglyceryl-6 pentaoleate
polyglyceryl-6 polyhydroxy stearate
polyglyceryl-6 polyricinoleate
polyglyceryl-6 ricinoleate
polyglyceryl-6 stearate
polygonatum multiflorum rhisome/root extract
polygonium multiflorum (ho hou wu)
polygonum tinctorium leaf extract
polyhydroxystearic acid
polyimide-1
polyisobutene
polylysine
polymethylsilsesquioxane
polypropylene
polypropylsilsesquioxane
polyquaternium-10
polyquaternium-11
polyquaternium-116
polyquaternium-37

polyquaternium-39
polyquaternium-4
polyquaternium-47
polyquaternium-6
polyquaternium-7
polysilicone-11
polysilicone-15
polysilicone-19
polysorbate 20
polysorbate 60
polysorbate 65
polysorbate 80
polyurethane-11
polyurethane-34
polyvinyl alcohol
polyvinyl butyral
polyvinyl stearyl ether
pongamia glabra seed oil
pongamol
poria cocos extract
porphyra umbilicalis extract
portulaca oleracea extract
portulaca pilosa extract
postelsia palmaeformis thallus extract
potassium alum
potassium azeloyl diglycinate
potassium benzoate
potassium carbonate
potassium cetyl phosphate
potassium chloride
potassium citrate
potassium cocoate
potassium cocoyl glycinate
potassium hempate (saponified hemp oil)
potassium hyaluronate
potassium hydrolyzed polygamma-glutamate
potassium hydroxide
potassium jojobate
potassium kernelate (saponified palm kernel oil)
potassium lactate
potassium laurate
potassium laureth-4 carboxylate
potassium lauryl sulfate
potassium metabisulfite
potassium nitrate
potassium oleate
potassium olivate
potassium olivate/cocoate
potassium palm kernelate (saponified palm kernel oil)
potassium palmitate
potassium palmitoyl hydrolyzed wheat protein
potassium shea butterate
potassium sorbate
potassium stearate
potassium tartrate
pouteria sapota (mamey sapote)
ppg-1 trideceth-6
ppg-12/smdi copolymer
ppg-14 butyl ether
ppg-15 stearyl ether
ppg-2 hydroxyethyl cocamide
ppg-2 hydroxyethyl coco/isostearamide
ppg-20 methyl glucose ether
ppg-25-laureth-25
ppg-26-buteth-26
ppg-2-deceth-30
ppg-3 benzyl ether myristate
ppg-5-ceteth-20
ppg-6
ppg-8-ceteth-20
ppg-9
p-phenylenediamine
premna serratifolia root extract
preservative
preservatives and antimicrobial agents
proline
propane
propanediol
propanediol dicaprylate
propolis
propyl acetate
propyl gallate
propylene carbonate
propylene glycol
propylene glycol dibenzoate
propylene glycol dicaprylate/dicaprate
propylene glycol isostearate
propylheptyl caprylate
propylparaben
prostanthera incisa leaf extract
prunus amygdalus dulcis
prunus armeniaca (apricot)
prunus avium
prunus cerasus flower extract
prunus domestica
prunus dulcis (almond)
prunus persica (peach)
prunus serotina (wild cherry)
prunus serrulata flower extract
prunus spinosa
pseudoalteromonas ferment extract
pseudozyma epicola (apricot kernel oil)
pseudozyma epicola/camellia sinensis seed oil ferment extract filtrate
psidium guajava fruit extract
pteridium aquilinum extract
pterocarpus soyauxii wood extract
pueraria lobata root extract
pullulan
pumice
punica granatum
pure magnesium salt minerals
pvm/ma copolymer
pvm/ma decadiene crosspolymer
pvp
pyridoxine hcl
pyrus communis (pear)
pyrus cydonia (quince)
pyrus malus
pyruvic acid
quartz
quaternium-22
quaternium-80
quaternium-87
quaternium-90
quaternium-91
quercus robur
quillaja saponaria
raphanus sativus (radish)
raspberry ketone
rebaudioside a
red 6 (ci 15850)
red 7 (ci 15850)
rehydrolyzed jojoba esters
retinol
retinyl palmitate
rhamnose
rheum rhabarbarum (rhubarb)
rhizobian gum
rhodiola rosea root extract
rhododendron anthopogon flower/leaf extract
rhododendron ferrugineum
rhus succedanea fruit cera
rhus verniciflua peel cera
rhus verniciflua peel cera/rhus succedanea fruit cera
ribes nigrum (black currant)
ribose
ricinus communis (castor)

rosa canina (rosehip)
rosa centifolia
rosa damascena (rose)
rosa gallica flower extract
rosa moschata
rosa rubiginosa seed oil
rosa rugosa flower oil
rosmarinus officinalis
rosmarinyl glucoside
royal jelly
rubia cordifolia root extract
rubus arcticus fruit extract
rubus chamaemorus (cloudberry)
rubus fruticosus (blackberry)
rubus idaeus
rubus villosus (blackberry) leaf extract
ruscus aculeatus root extract
saccharide isomerate
saccharin
saccharomyces cerevisiae (yeast) extract/ferment/ferment filtrate/ferment lysate filtrate/copper ferment /iron ferment/magnesium ferment/silicon ferment/zinc ferment
saccharum officinarum extract
safflower oil/palm oil aminopropanediol esters
salicornia herbacea extract
salicylic acid
salix alaxensis
salix alba
salix nigra bark extract
salix purpurea bark extract*
salvadora persica stem extract
salvia hispanica
salvia officinalis (sage)
salvia sclarea
sambucus nigra (elder)
santalum acuminatum fruit extract
santalum album (sandalwood)
santalum spicata wood oil
sapindus mukorossi
sapindus trifoliatus (soapberry)
saponaria officinalis (soapwort)
saururus chinensis extract
scenedesmus deserticola ferment extract
schinus terebinthifolia
schizandra sphenanthera fruit extract
sclerocarya birrea seed oil
sclerotium gum
scutellaria baicalensis root extract
sd alcohol 40-b
selaginella lepidophylla (rose of jericho) extract
serica powder
serine
sesamum indicum (sesame)
shea butter ethyl esters
shorea robusta resin
shorea stenoptera seed butter
sh-polypeptide-69
sida cordifolia extract
sideritis syriaca extract
sigesbeckia orientalis extract
silanetriol
silica
silica dimethyl silylate
silica silylate
silver chloride
silver citrate
silybum marianum
simethicone
simmondsia chinensis
siraitia grosvenorii fruit extract
sisymbrium irio seed oil
snowflake shine powder
sodium acetate
sodium acetylated hyaluronate
sodium acrylate/sodium acryloyldimethyl taurate copolymer
sodium acrylates copolymer
sodium acrylates crosspolymer-2
sodium almondate (sweet almond oil)
sodium anisate
sodium ascorbate
sodium ascorbyl phosphate
sodium avocadoate
sodium bassasuate (saponified babassu oil)
sodium beeswax
sodium benzoate
sodium benzotriazolyl butylphenol sulfonate
sodium bicarbonate
sodium c12-18 alkyl sulfate
sodium c14-15 olefin sulfonate
sodium c14-16 olefin sulfonate
sodium caproyl prolinate
sodium caproyl/lauroyl lactylate
sodium caproyl/lauroyl lactylate (plant/salt complex)
sodium carbonate
sodium carboxymethyl betaglucan
sodium carrageenan
sodium castorate
sodium cetearyl sulfate
sodium chloride
sodium citrate
sodium coceth sulfate
sodium cocoa butterate
sodium cocoamphoacetate
sodium cocoate
sodium coco-sulfate
sodium cocoyl apple amino acids
sodium cocoyl glutamate
sodium cocoyl glycinate
sodium cocoyl hydrolyzed pea protein
sodium cocoyl hydrolyzed wheat protein
sodium cocoyl isethionate
sodium cocoyl sarcosinate
sodium cocoyl/olivoyl hydrolyzed oat protein
sodium coffee seedate
sodium dehydroacetate
sodium dihydrogen phosphate dihydrate
sodium dilauramidoglutamide lysine
sodium erythorbate
sodium fluoride
sodium gluceptate
sodium gluconate
sodium glutamate
sodium glycerophosphate
sodium glycolate
sodium hyaluronate
sodium hyaluronate (tri-hyaluronan complex)
sodium hyaluronate crosspolymer
sodium hydroxide
sodium hydroxymethylglycinate
sodium hydroxypropyl starch phosphate
sodium hydroxypropylsulfonate laurylglucoside crosspolymer
sodium isethionate
sodium isostearoyl lactylate
sodium lactate
sodium laneth-40 maleate/styrene sulfonate copolymer
sodium laurate

sodium laureth sulfate
sodium laureth-11 carboxylate
sodium laureth-12 sulfate
sodium laureth-5 carboxylate
sodium lauroyl glutamate
sodium lauroyl glycinate
sodium lauroyl isethionate
sodium lauroyl lactylate
sodium lauroyl methyl isethionate
sodium lauroyl sarcosinate
sodium lauryl glucose carboxylate
sodium lauryl glutamate
sodium lauryl sulfate
sodium lauryl sulfoacetate
sodium laurylglucosides hydroxypropylsulfonate
sodium levulinate
sodium linoleate
sodium magnesium fluorosilicate
sodium mango butterate
sodium metabisulfite
sodium methyl cocoyl taurate
sodium methyl isethionate
sodium methyl lauroyl taurate
sodium methyl oleoyl taurate
sodium methylparaben
sodium monofluorophosphate
sodium myreth sulfate
sodium myristate
sodium nitrate
sodium oleate
sodium oleoyl sarcosinate
sodium olivate
sodium palm kernelate
sodium palmate
sodium palmitate
sodium pca
sodium phosphate
sodium phytate
sodium polyacrylate
sodium polyacrylate starch
sodium polyacryloyldimethyl taurate
sodium polyitaconate
sodium riboflavin phosphate
sodium ricinoleate
sodium saccharin
sodium salicylate
sodium seabuckthornseedate
sodium sesameseedate
sodium shea butterate
sodium silicate
sodium stearate
sodium stearoyl glutamate
sodium stearoyl lactylate
sodium sulfate
sodium sulfite
sodium sunflowerseedamphoacetate
sodium sunflowerseedate
sodium surfactin
sodium thiosulfate
solanum indicum root extract
solanum lycopersicum (tomato) fruit extract
solanum melongena fruit extract
solanum xanthocarpum root extract
soluble collagen
solum diatomeae
sophora flavescens root extract
sorbeth-30 tetraisostearate
sorbic acid
sorbitan caprylate
sorbitan isostearate
sorbitan laurate
sorbitan oleate
sorbitan olivate
sorbitan sesquicaprylate
sorbitan sesquiisostearate
sorbitan sesquioleate
sorbitan stearate
sorbitan tristearate
sorbitol
sorbitol/hydrogenated starch hydrolysate
sorbitol/sebacic acid copolymer behenate
soy acid
soy amino acids
soy isoflavones
sphingomonas ferment extract
spilanthes acmella flower extract
spindus mukorossi (reetha fruit)
spiraea ulmaria
spirulina maxima extract
spirulina platensis (spirulina algae)
squalane
squalene
sr-hydrozoan polypeptide-1
sr-spider polypeptide-1
starch hydroxypropyltrimonium chloride
stearalkonium bentonite
stearalkonium chloride
stearalkonium hectorite
stearamide amp
stearamidopropyl dimethylamine
steareth-2
steareth-20
steareth-21
steareth-4
steareth-6
stearic acid
stearoxypropyl dimethylamine
stearoyl inulin
steartrimonium chloride
stearyl alcohol
stearyl behenate
stearyl caprylate
stearyl dimethicone
stearyl glycyrrhetinate
stearyl heptanoate
stearyl stearate
stellaria media extract
stereospermum suaveolens root extract
stevia (rebiana)
stevia rebaudiana leaf/stem extract
stevioside
styrax benzoin (benzoin)
styrax tonkinensis (benzoin)
styrene/acrylates copolymer
succinic acid
succinoglycan
sucrose
sucrose acetate isobutyrate
sucrose cocoate
sucrose dilaurate
sucrose distearate
sucrose laurate
sucrose palmitate
sucrose polystearate
sucrose stearate
sucrose trilaurate
sulfated castor oil
sulfuric acid
sunfloweroyl methylglucamide
superoxide dismutase
swertia japonica extract
symphytum officinale
synthetic beeswax
synthetic fluorphlogopite
synthetic sapphire
synthetic wax
syzygium aromaticum bark extract
tabebuia impetiginosa leaf extract
tagetes minuta flower oil
talc

taraxacum officinale (dandelion)
tartaric acid
tasmannia lanceolata
taurine
t-butyl alcohol
tephrosia purpurea seed extract
terminalia bellerica fruit extract
terminalia chebula fruit extract
terminalia ferdinandiana fruit extract
tetrahexyldecyl ascorbate
tetrahydroxypropyl ethylenediamine
tetramethyl acetyloctahydronaphthalenes
tetrapotassium pyrophosphate
tetrasodium
tetrasodium disuccinoyl cystine
tetrasodium edta
tetrasodium etidronate
tetrasodium glutamate diacetate
tetrasodium iminodisuccinate
tetrasodium pyrophosphate
theobroma cacao (organic cocoa)
theobroma grandiflorum seed butter
threonine
thymol
thymus vulgaris (thyme)
tilia cordata (linden)
tilia tomentosa
tin oxide
titanium dioxide
tocopherol
tocopheryl acetate
tocopheryl retinoate
tocotrienols
tosylamide/epoxy resin
totarol
tourmaline
trachyspermum ammi fruit extract
trehalose
tremella fuciformis
tri(polyglyceryl-3/lauryl) hydrogenated trilinoleate
triacetin
tribehenin
tribulus terrestris root extract
tributyl citrate
tricalcium phosphate
tricaprylin
tricetеareth-4 phosphate
tridecane
trideceth-10
trideceth-12
trideceth-3
trideceth-6
trideceth-7
trideceth-8
trideceth-9
tridecyl trimellitate
triethanolamine
triethoxycaprylylsilane
triethoxysilylethyl polydimethylsiloxyethyl dimethicone
triethyl citrate
triethylene glycol
triethylhexanoin
trifolium pratense (clover)
trigonella foenum graecum
triheptanoin
trihydroxystearin
trimethyl pentanyl diisobutyrate
trimethylpentanediol/adipic acid/glycerin crosspolymer
trimethylpentanediyl dibenzoate
trimethylsiloxysilicate
tripeptide-29
tris(tetramethylhydroxypiperidinol) citrate
trisiloxane
trisodium edta
trisodium ethylenediamine disuccinate
trisodium hedta
trisodium phosphate
tristearin
triticum aestivum germ oil
triticum vulgare
tromethamine
tropaeolum majus (indian cress) extract
tropolone
turpentine
turquoise
tussilago farfara (coltsfoot)
ubiquinone
ulmus davidiana root extract
undaria pinnatifida extract
undecane
undecyl alcohol
undecylenic acid
undecylenoyl glycine
uraria picta
urea
urtica dioica (nettle)
urtica urens leaf extract
usnea barbata (lichen) extract
v3161a
v3767a
vaccinium macrocarpon
vaccinium myrtillus (blueberry)
vaccinium myrtillus (myrtle)
valeriana celtica (speick)
valine
vanilla planifolia (vanilla)
vanillin
verbascum thapsus extract
verbena officinalis
vetiveria zizanioides
vinegar extract (apple cider)
vinyl dimethicone/methicone silsesquioxane crosspolymer
viola tricolor extract
vitamins
vitis vinifera
vp/dmapa acrylates copolymer
vp/eicosene copolymer
vp/hexadecene copolymer
vp/va copolymer
wasabia japonica root extract
waxes
wheat amino acids
wine extract
withania somnifera root extract
xanthan gum
ximenia perrieri seed oil
xylitol
xylitylglucoside
zea mays
zeolite
zinc chloride
zinc citrate
zinc coceth sulfate
zinc gluconate
zinc lactate
zinc laurate
zinc neodecanoate
zinc oxide
zinc pca
zinc phenolsulfonate
zinc ricinoleate
zinc stearate
zinc sulfate
zingiber officinale
zizyphus joazeiro bark extract
zizyphus jujuba leaf extract

11 Annex III Complete list of ingredients in Beauty & personal care products without claims as mentioned in the Mintel GNPD

1,2-hexanediol
1-methylhydantoin-2-imide
2-benzylheptanol
2-bromo-2-nitropropane-1,3-diol
2-oleamido-1,3-octadecanediol
acacia decurrens
acacia senegal gum
acanthopanax senticosus root extract
acer saccharum extract
acetic acid
acetum
acetyl glucosamine
acetyl hexapeptide-8
acetyl octapeptide-3
acetyl tetrapeptide-3
acetyl tributyl citrate
acetyl trifluoromethylphenyl valyglycine
acid orange 24
acid orange 7
acid red 52
acid violet 43
acid yellow 3
acrylamide/ammonium acrylate copolymer
acrylamide/sodium acryloyldimethyltaurate copolymer
acrylates copolymer
acrylates crosspolymer-4
acrylates/beheneth-25 methacrylate copolymer
acrylates/c10-30 alkyl acrylate crosspolymer
acrylates/dimethicone copolymer
acrylates/ethylhexyl acrylate copolymer
acrylonitrile/methyl methacrylate/vinylidene chloride copolymer
adenosine
adipic acid/neopentyl glycol/trimellitic anhydride copolymer
aesculus hippocastanum bark extract
agar
alanine
albizia julibrissin flower extract
alchemilla vulgaris extract
alcohol
alcohol denat.
alcohols
aleurites moluccanus
algae extract
algin
allantoin
allyl stearate/va copolymer
aloe barbadensis
aloe vera
alpha-isomethyl ionone
alumina
aluminium chlorohydrate
aluminum benzoate
aluminum calcium sodium silicate
aluminum hydroxide
aluminum starch octenylsuccinate
aluminum zirconium tetrachlorohydrex gly
aminomethyl propanediol
aminomethyl propanol
aminopropyl ascorbyl phosphate
ammonium acryloyldimethyltaurate/vp copolymer
ammonium fluoride
ammonium hydroxide
ammonium polyacryloyldimethyl taurate
amodimethicone
amorphophallus konjac
amyl cinnamal
anhydroxylitol
anise alcohol
anthemis nobilis
aqua
arachidyl alcohol
arbutin
arctium lappa root extract
argania spinosa kernel oil
arginine
arnica montana flower extract
aroma
artemisia princeps leaf extract
arum maculatum root extract
ascorbic acid
ascorbyl glucoside
ascorbyl palmitate
asiaticoside
aspalathus linearis extract
aspartic acid
astrocaryum murumuru seed butter
avena sativa (oat)
avena sativa bran
bambusa arundinacea stem extract
bambusa vulgaris
beeswax
behenamidopropyl dimethylamine
behentrimonium chloride
behentrimonium methosulfate
behenyl alcohol
behenyl behenate
behenyl/octyldodecyl propanediol citrate crosspolymer
bentonite
benzoic acid
benzophenone-1
benzophenone-2
benzyl acetate
benzyl alcohol
benzyl benzoate
benzyl cinnamate
benzyl salicylate
beta-carotene
betaine
betula alba leaf extract
bht
biosaccharide gum-1
biosaccharide gum-4
bisabolol
bis-aminopropyl dimethicone

bis-cetearyl amodimethicone
bis-diglyceryl polyacyladipate-2
bis-diisopropanolamino-pg-propyl dimethicone/bis-isobutyl peg-14 copolymer
bis-ethylhexyloxyphenol methoxyphenyl triazine
bis-peg/ppg-14/14 dimethicone
bis-peg-18 methyl ether dimethyl silane
bis-stearyl dimethicone
borago officinalis seed oil
brassica campestris
brassica oleracea capitata (cabbage) leaf extract
brassica oleracea italica (broccoli) extract
brassicamidopropyl dimethylamine
butane
butyl acetate
butyl methoxydibenzoylmethane
butylene glycol
butylene glycol dicaprylate/dicaprate
butyloctanol
butylphenyl methylpropional
butyrospermum parkii (shea)
c10-18 triglycerides
c11-15 alketh-7
c12-15 alkyl benzoate
c13-15 alkane
c14-28 alkyl acid
c14-28 isoalkyl acid
c15-19 alkane
c30-45 alkyldimethylsilyl polypropylsilsesquioxane
caffeine
calcium aluminum borosilicate
calcium chloride
calcium gluconate
calcium lactate
calcium pantothenate
calcium sodium borosilicate
calcium titanium borosilicate
calendula officinalis
calophyllum inophyllum seed oil
camellia japonica seed oil
camellia oleifera seed oil
camellia sinensis
camphor
cananga odorata flower oil
candelilla cera
cannabis sativa
canola oil
caprae lac
capric acid
caprylhydroxamic acid
caprylic acid
caprylic/capric glycerides
caprylic/capric triglyceride
capryloyl glycine
capryloyl salicylic acid
caprylyl glycol
caprylyl/capryl glucoside
caramel
carbomer
carrageenan
cedrus atlantica bark oil
cellulose
cellulose gum
centaurea cyanus
centella asiatica
cera microcristallina
ceramide ap
ceramide eop
ceramide ng
ceramide np
ceratonia siliqua (carob) gum
ceresin
ceteareth-12
ceteareth-20
ceteareth-25
ceteareth-33
cetearyl alcohol
cetearyl glucoside
cetearyl olivate
cetrimonium chloride
cetrimonium methosulfate
cetyl alcohol
cetyl esters
cetyl ethylhexanoate
cetyl hydroxyethylcellulose
cetyl palmitate
cetyl stearate
cetylpyridinium chloride
chamomilla recutita flower extract
charcoal powder
chlorhexidine digluconate
chlorphenesin
cholesterol
chondrus crispus
ci 14700
ci 14720
ci 15510
ci 15985
ci 16035
ci 16255
ci 17200
ci 18965
ci 19140
ci 28440
ci 42051
ci 42053
ci 42090
ci 47005
ci 60725
ci 60730
ci 73360
ci 73900
ci 73915
ci 74160
ci 77007
ci 77120
ci 77266
ci 77491
ci 77492
ci 77499 (black 11)
cinnamal
cinnamomum camphora linalooliferum wood oil
cinnamyl alcohol
citral
citrates
citric acid
citronellol
citrus aurantifolia
citrus aurantium amara
citrus aurantium bergamia fruit oil
citrus aurantium dulcis (orange)
citrus bergamia peel oil expressed
citrus junos fruit extract
citrus limon fruit extract
citrus medica limonum
citrus nobilis
citrus paradisi fruit extract
citrus reticulata fruit extract
citrus unshiu peel extract
cocamide dea
cocamide mea
cocamide mipa
cocamidopropyl betaine
cocamidopropyl hydroxysultaine
cocamidopropyl pg-dimonium chloride phosphate

coco-betaine
coco-caprylate
coco-caprylate/caprate
cocodimonium hydroxypropyl hydrolyzed keratin
coco-glucoside
coconut acid
coconut alcohol
coconut alkanes
cocos nucifera fruit
cocos nucifera fruit extract
cocos nucifera oil
cocoyl hydrolyzed collagen
cocoyl hydrolyzed keratin
coffea arabica fruit powder
collagen
collodion
colloidal oatmeal
colophonium
commiphora myrrha resin extract
copaifera officinalis resin
copernicia cerifera cera
coriandrum sativum (coriander) seed oil
cosmetic flavouring
coumarin
creatine
crocus sativus flower extract
cucurbita maxima seed extract
cucurbita pepo fruit extract
curcuma longa (turmeric) root extract
cyamopsis tetragonoloba gum
cyclodextrin
cyclohexasiloxane
cyclopentasiloxane
cymbopogon martini herb oil
cymbopogon schoenanthus oil
d260471/1
daucus carota sativa
decyl glucoside
decyl oleate
dehydroacetic acid
dextran
dextrin
diacetone alcohol
diaminopyrimidine oxide
diazolidinyl urea
dibutyl adipate
dicalcium phosphate
dicaprylyl carbonate
dicaprylyl ether
dicetyldimonium chloride
diethylamino hydroxybenzoyl hexyl benzoate
diethylhexyl butamido triazone
diethylhexyl syringylidenemalonate
diglycerin
diisopropyl sebacate
diisostearoyl polyglyceryl-3
dimer dilinoleate
diisostearyl malate
dilinoleic acid/butanediol copolymer
dimethicone
dimethicone crosspolymer
dimethicone/divinyldimethicone /silsesquioxane crosspolymer
dimethicone/peg-10/15 crosspolymer
dimethicone/vinyl dimethicone crosspolymer
dimethiconol
dimethyl ether
dimethylsilanol hyaluronate
dipalmitoylethyl hydroxyethylmonium methosulfate
dipentaerythrityl hexahydroxystearate/hexastear ate/hexarosinate
dipentaerythrityl tetrahydroxystearate/tetraisost earate
dipeptide diaminobutyroyl benzylamide diacetate
dipeptide-15
dipotassium glycyrrhizate
dipropylene glycol
dipropylene glycol dibenzoate
disodium cocoamphodiacetate
disodium cocoyl glutamate
disodium distyrylbiphenyl disulfonate
disodium edta
disodium laureth sulfosuccinate
disodium lauryl sulfosuccinate
disodium phosphate
disodium stearoyl glutamate
distarch phosphate
disteardimonium hectorite
distearoylethyl dimonium chloride
distearyldimonium chloride
disunfloweroylethyl dimonium chloride
drometrizole trisiloxane
ectoin
edta
empetrum nigrum fruit juice
emulsifying wax
equisetum arvense (horsetail) extract
erythritol
esculin
ethoxydiglycol
ethyl acetate
ethyl ascorbic acid
ethyl ester of hydrolyzed silk
ethyl hexanediol
ethyl macadamiate
ethyl vanillin
ethylene distearamide
ethylene/acrylic acid copolymer
ethylene/propylene copolymer
ethylene/va copolymer
ethylenediamine/stearyl dimer dilinoleate copolymer
ethylhexyl cocoate
ethylhexyl isononanoate
ethylhexyl methoxycinnamate
ethylhexyl palmitate
ethylhexyl salicylate
ethylhexyl triazone
ethylhexylglycerin
ethylparaben
etidronic acid
eucalyptol
eucalyptus citriodora leaf extract
eucalyptus globulus
eugenol
euterpe oleracea sterols
faex extract
farnesol
fraxinus excelsior bark extract
freesia refracta extract
fuller's earth
fumaric acid
galactoarabinan
gamma-nonalactone
gardenia florida fruit extract
gardenia tahitensis flower
gellan gum
geraniol
glucomannan
gluconic acid
gluconolactone
glutamic acid
glycereth-2 cocoate

glycereth-26
glycerin
glyceryl acrylate/acrylic acid copolymer
glyceryl behenate
glyceryl caprylate
glyceryl dibehenate
glyceryl oleate
glyceryl oleate citrate
glyceryl polymethacrylate
glyceryl stearate
glyceryl stearate citrate
glyceryl stearate se
glyceryl undecylenate
glycine
glycine soja oil
glycine soja protein
glycine soja seed extract
glycol distearate
glycol montanate
glycol stearate
glycolic acid
glycoproteins
glycyrrhiza glabra root extract
glycyrrhiza inflata root extract
glyoxylic acid
gossypium herbaceum seed oil
gossypium hirsutum (cotton) extract
guar hydroxypropyltrimonium chloride
hamamelis virginiana (witch hazel)
hdi/trimethylol hexyllactone crosspolymer
hectorite
helianthus annuus
hexapeptide-11
hexyl cinnamal
hexylene glycol
hibiscus sabdariffa
hippophae rhamnoides
histidine
homosalate
hordeum vulgare extract
houttuynia cordata extract
hyaluronic acid
hydrated silica
hydrogenated castor oil
hydrogenated coco-glycerides
hydrogenated ethylhexyl olivate
hydrogenated jojoba oil
hydrogenated lecithin
hydrogenated olive oil unsaponifiables
hydrogenated palm glycerides
hydrogenated palm glycerides citrate
hydrogenated palm oil
hydrogenated poly(c6-14 olefin)
hydrogenated polydecene
hydrogenated polyisobutene
hydrogenated rapeseed oil
hydrogenated soybean oil
hydrogenated starch hydrolysate
hydrogenated styrene/butadiene copolymer
hydrogenated styrene/methyl styrene/indene copolymer
hydrogenated vegetable oil
hydrolyzed collagen
hydrolyzed corn starch
hydrolyzed hyaluronic acid
hydrolyzed keratin
hydrolyzed rhodophycea extract
hydrolyzed rice protein
hydrolyzed silk
hydrolyzed silk pg-propyl methylsilanediol
hydrolyzed soy protein
hydrolyzed sweet almond protein
hydrolyzed vegetable protein pg-propyl silanetriol
hydrolyzed wheat protein
hydroxyacetophenone
hydroxyapatite
hydroxycitronellal
hydroxyethyl acrylate/sodium acryloyldimethyl taurate copolymer
hydroxyethylcellulose
hydroxyethylpiperazine ethane sulfonic acid
hydroxyisohexyl 3-cyclohexene carboxaldehyde
hydroxyphenyl propamidobenzoic acid
hydroxyproline
hydroxypropyl guar
hydroxypropyl guar
hydroxypropyltrimonium chloride
hydroxypropyl methylcellulose
hydroxypropyl oxidized starch pg-trimonium chloride
hydroxypropyl starch phosphate
hydroxypropylcellulose
hydroxypropyltrimonium hydrolyzed rice protein/siloxysilicate
hydroxystearic acid
hypericum perforatum extract
illicium verum (anise) fruit extract
imidazolidinyl urea
inulin
iodopropynyl butylcarbamate
iron oxide
irvingia gabonensis kernel butter
isobutane
isocetyl stearate
isododecane
isoeugenol
isohexadecane
isoleucine
isomerized linoleic acid
isononyl isononanoate
isopentane
isopropyl alcohol
isopropyl isostearate
isopropyl lauroyl sarcosinate
isopropyl myristate
isopropyl palmitate
isopropyl titanium triisostearate
isostearic acid
isostearyl isostearate
isostearyl neopentanoate
jasminum officinale (jasmine) flower extract
jojoba esters
jojoba wax peg-120 esters
juniperus communis
juniperus sibirica needle extract
juniperus virginiana
kaolin
keratin amino acids
krameria triandra root extract
lactic acid
lactis proteinum
lactose
laminaria saccharina extract
lamium album flower extract
lanolin
lanolin alcohol

lanolin cera
lanthanum chloride
laureth-21
laureth-23
laureth-4
laureth-5 carboxylic acid
laureth-7
laureth-9
lauric acid
lauroyl lysine
laurtrimonium chloride
laurus nobilis leaf oil
lauryl glucoside
lauryl hydroxysultaine
lauryl lactyl lactate
lauryl peg-9
polydimethylsiloxyethyl dimethicone
lavandula angustifolia (lavender)
lavandula hybrida oil
lavandula officinalis extract
lecithin
lepidium sativum sprout extract
leptospermum petersonii oil
leuconostoc/radish root ferment filtrate
levulinic acid
limnanthes alba seed oil
limonene
limus
linalool
linoleic acid
linolenic acid
linum usitatissimum
l-limonene
lonicera caprifolium (honeysuckle)
lonicera japonica (honeysuckle)
lophanthus anisatus extract
luffa cylindrica seed oil
macadamia ternifolia seed oil
madecassoside
magnesium aluminum silicate
magnesium ascorbyl phosphate
magnesium chloride
magnesium chloride (hexhydrate)
magnesium citrate
magnesium laureth sulfate
magnesium myristate
magnesium nitrate
magnesium pca
magnesium silicate
magnesium stearate
magnesium sulfate
magnolia officinalis bark extract
malic acid
maltodextrin
maltol
maltooligosyl glucoside
manihot utilissima starch
mannitol
maris aqua
maris limus extract
maris sal
mauritia flexuosa fruit oil
medicago sativa (alfalfa)
mel
melaleuca alternifolia
melia azadirachta seed oil
melissa officinalis leaf extract
mentha aquatica leaf extract
mentha arvensis
mentha piperita (peppermint)
mentha rotundifolia leaf extract
menthol
menthone glycerin acetal
menthyl acetate
methyl salicylate
methyl trimethicone
methylchloroisothiazolinone
methylheptyl isostearate
methylisothiazolinone
methylparaben
methylpropanediol
methylsilanol/silicate crosspolymer
mica
microcrystalline cellulose
mint flavour
mipa-laureth sulfate
monarda didyma leaf extract
myristic acid
myristyl myristate
myrtrimonium bromide
nacre powder
n-butyl alcohol
nelumbium speciosum
nelumbo nucifera flower extract
neopentyl glycol diheptanoate
niacinamide
nigella sativa seed oil
nylon
nylon-12
nylon-611/dimethicone copolymer
nymphaea alba flower extract
octadecyl di-t-butyl-4-hydroxyhydrocinnamate
octenidine hcl
octocrylene
octyldodecanol
octyldodecyl citrate crosspolymer
octyldodecyl pca
octyldodecyl stearoyl stearate
o-cymen-5-ol
olaflur
olea europaea (olive)
oleic acid
oleoyl tyrosine
oleyl alcohol
olive oil polyglyceryl-6 esters
olus oil
onopordum acanthium flower/leaf/stem extract
opuntia ficus-indica (cactus)
opuntia ficus-indica extract
orbignya oleifera seed oil
oryza sativa
oryzanol
ostrea shell extract
oxothiazolidinecarboxylic acid
ozokerite
paeonia officinalis flower extract
paeonia suffruticosa root extract
palmitic acid
palmitoyl hexapeptide-12
palmitoyl tetrapeptide-7
palmitoyl tripeptide-1
panax ginseng root extract
pancratium maritimum extract
p-anisic acid
panthenol
panthenyl hydroxypropyl steardimonium chloride
panthenyl triacetate
pantolactone
papaver somniferum seed
paraffin
paraffinum liquidum
parfum
pca
pearl powder
pectin
peg/ppg/polybutylene glycol-8/5/3 glycerin
peg/ppg-18/18 dimethicone

peg-10 dimethicone
peg-100
peg-100 stearate
peg-115m
peg-12 dimethicone
peg-120 methyl glucose dioleate
peg-150 distearate
peg-150 pentaerythrityl tetrastearate
peg-150/decyl alcohol/smdi copolymer
peg-160m
peg-18 glyceryl oleate/cocoate
peg-180m
peg-2 stearate
peg-20 stearate
peg-200 glyceryl stearate
peg-200 hydrogenated glyceryl palmate
peg-2m
peg-3 distearate
peg-30 glyceryl stearate
peg-32
peg-4
peg-4 dilaurate
peg-4 laurate
peg-4 rapeseedamide
peg-40 castor oil
peg-40 hydrogenated castor oil
peg-400/1,4-butanediol/smdi copolymer
peg-45m
peg-50 shea butter
peg-55 propylene glycol oleate
peg-6
peg-6 caprylic/capric glycerides
peg-60 hydrogenated castor oil
peg-7 glyceryl cocoate
peg-7 propylheptyl ether
peg-8
peg-8 dimethicone
peg-8 laurate
peg-9m
pelargonium graveolens flower oil
pentaerythrityl tetra-di-t-butyl hydroxyhydrocinnamate
pentaerythrityl tetraethylhexanoate
pentaerythrityl tetraisostearate
pentasodium pentetate
pentasodium triphosphate
pentylene glycol
perilla frutescens leaf extract
perlite
persea gratissima oil
petrolatum
phalaenopsis amabilis extract
phenethyl alcohol
phenoxyethanol
phenyl trimethicone
phenylalanine
phenylbenzimidazole sulfonic acid
phenylethyl resorcinol
phenylpropanol
phospholipids
phosphoric acid
phyllanthus emblica fruit extract
phytic acid
phytosphingosine
phytosteryl/octyldodecyl lauroyl glutamate
pinus sibirica seed oil
pinus sylvestris leaf extract
piper nigrum fruit oil
piroctone olamine
plantago major leaf extract
pogostemon cablin
poloxamer 101
poloxamer 124
poloxamer 184
poloxamer 407
poly c10-30 alkyl acrylate
polybutene
polyepsilon-lysine
polyester
polyester-37
polyethylene
polyglycerin-3
polyglyceryl-10 laurate
polyglyceryl-2 caprate
polyglyceryl-2 dipolyhydroxystearate
polyglyceryl-2 triisostearate
polyglyceryl-3 caprate
polyglyceryl-3 diisostearate
polyglyceryl-3 oleate
polyglyceryl-3 palmitate
polyglyceryl-3 polyricinoleate
polyglyceryl-4 caprate
polyglyceryl-4 caprylate
polyglyceryl-4 isostearate
polyglyceryl-4 laurate/succinate
polyglyceryl-6 polyricinoleate
polyhydroxystearic acid
polyisobutene
polymethyl methacrylate
polymethylsilsesquioxane
polymethylsilsesquioxane/trimethylsiloxysilicate
polypropylsilsesquioxane
polyquaternium-10
polyquaternium-39
polyquaternium-7
polysilicone-11
polysilicone-15
polysilicone-28
polysorbate 20
polysorbate 60
polysorbate 80
polyurethane-35
polyvinyl laurate
pongamia glabra seed oil
pongamol
populus tremuloides bark extract
potassium acesulfame
potassium cetyl phosphate
potassium chloride
potassium cocoate
potassium hydroxide
potassium isostearate
potassium laurelate
potassium nitrate
potassium olivate
potassium palmitate
potassium sorbate
ppg-15 stearyl ether
ppg-17/ipdi/dmpa copolymer
ppg-2 hydroxyethyl cocamide
ppg-26-buteth-26
ppg-3 benzyl ether myristate
ppg-5-ceteth-20
ppg-6
ppg-9
proline
propane
propanediol
propolis extract
propyl gallate
propylene carbonate
propylene glycol
propylene glycol dicaprylate/dicaprate
propylheptyl caprylate
propylparaben
prunus amygdalus dulcis
prunus armeniaca

prunus persica
prunus spinosa fruit juice
pseudozyma epicola/camellia sinensis seed oil ferment extract filtrate
pumice
punica granatum
pvm/ma copolymer
pvp
pyridoxine hcl
pyrus malus fruit extract
quaternium-18
quaternium-80
quaternium-87
quaternium-91
raphanus sativus (radish) seed extract
rayon
rebaudioside a
red 7 (ci 15850)
retinyl palmitate
rhizobian gum
rhodiola rosea root extract
rhus succedanea fruit cera
ricinus communis (castor)
rosa canina
rosa damascena
rosmarinus officinalis
rubus idaeus seed oil
saccharide isomerate
saccharin
saccharum officinarum extract
salicylic acid
salicyloyl phytosphingosine
salix nigra bark extract
salvia hispanica seed oil
salvia officinalis water
salvia sclarea extract
santalum album (sandalwood)
sarcosine
schisandra chinensis extract
sclerocarya birrea seed oil
scutellaria baicalensis root extract
sd alcohol 39-c
sd alcohol 40-b
serica powder
sericin
serine
sesamum indicum (sesame)
shea butter peg-8 esters
sigesbeckia orientalis (st. paul's wort) extract
silanetriol
silica
silica silylate
silk amino acids
simethicone
simmondsia chinensis seed oil
sine adipe lac
sodium acetate
sodium acrylate/sodium acryloyldimethyl taurate copolymer
sodium anisate
sodium ascorbyl phosphate
sodium benzoate
sodium bicarbonate
sodium bisulfite
sodium c14-16 olefin sulfonate
sodium castorate
sodium cetearyl sulfate
sodium chloride
sodium citrate
sodium cocoamphoacetate
sodium cocoate
sodium coco-sulfate
sodium cocoyl glutamate
sodium cocoyl hydrolyzed silk
sodium cocoyl isethionate
sodium cocoyl methyl isethionate
sodium dehydroacetate
sodium fluoride
sodium gluconate
sodium hempseedate
sodium hexametaphosphate
sodium hyaluronate
sodium hydroxide
sodium hydroxypropyl starch phosphate
sodium isethionate
sodium isostearate
sodium isostearoyl lactylate
sodium lactate
sodium laurate
sodium laureth sulfate
sodium lauroamphoacetate
sodium lauroyl aspartate
sodium lauroyl glutamate
sodium lauroyl glycinate
sodium lauroyl isethionate
sodium lauroyl lactylate
sodium lauroyl methyl isethionate
sodium lauroyl sarcosinate
sodium lauryl glucose carboxylate
sodium lauryl sulfate
sodium levulinate
sodium metabisulfite
sodium methyl cocoyl taurate
sodium methyl oleoyl taurate
sodium methylparaben
sodium monofluorophosphate
sodium myreth sulfate
sodium oleate
sodium olivate
sodium palm kernelate
sodium palmate
sodium palmitate
sodium pca
sodium peg-7 olive oil carboxylate
sodium phosphate
sodium phytate
sodium polyacrylate
sodium polyacrylate starch
sodium polymethacrylate
sodium pyruvate
sodium saccharin
sodium salicylate
sodium starch octenylsuccinate
sodium stearate
sodium stearoyl glutamate
sodium stearoyl lactylate
sodium sulfate
sodium xylenesulfonate
solum diatomeae
sorbic acid
sorbitan caprylate
sorbitan isostearate
sorbitan laurate
sorbitan oleate
sorbitan olivate
sorbitan palmitate
sorbitan sesquicaprylate
sorbitan stearate
sorbitol
soy amino acids
squalane
stannous fluoride
starch hydroxypropyltrimonium chloride
stearalkonium bentonite
stearalkonium hectorite
stearamide amp
stearamidopropyl dimethylamine
steardimonium hydroxypropyl hydrolyzed keratin
steareth-2

steareth-20
steareth-21
steareth-6
stearic acid
stearoxypropyl dimethylamine
steartrimonium chloride
stearyl alcohol
stearyl stearate
styrene/acrylates copolymer
styrene/acrylates/ammonium methacrylate copolymer
styrene/butadiene copolymer
succinic acid
sucralose
sucrose
sucrose acetate isobutyrate
sucrose cocoate
sucrose palmitate
sucrose polystearate
sucrose stearate
sunflower seed oil glycerides
sweet almond oil polyglyceryl-6 esters
symphytum officinale leaf extract
synthetic beeswax
synthetic fluorphlogopite
synthetic wax
talc
tartaric acid
t-butyl alcohol
tea-dodecylbenzenesulfonate
tea-sulfate
terminalia ferdinandiana fruit extract
tetrapotassium pyrophosphate
tetrasodium edta
tetrasodium etidronate
tetrasodium glutamate diacetate
tetrasodium pyrophosphate
theobroma cacao seed butter
threonine
thymol
thymus vulgaris herb extract
tin oxide
titanium dioxide
tocopherol
tocopheryl acetate
trehalose
tremella fuciformis extract
tribehenin
tricaprylin
tridecane
trideceth-10
trideceth-12
trideceth-3
trideceth-6
trideceth-9
tridecyl trimellitate
triethanolamine
triethoxycaprylylsilane
triethoxysilylethyl polydimethylsiloxyethyl dimethicone
triethyl citrate
triethylene glycol
triethylhexanoin
trifolium pratense (clover) flower extract
trihydroxystearin
trimethyl pentanyl diisobutyrate
trimethyl pentaphenyl trisiloxane
trimethylpentanediol/adipic acid/glycerin crosspolymer
trimethylsiloxyphenyl dimethicone
trimethylsiloxysilicate
tripeptide-29
tris(tetramethylhydroxypiperidinol) citrate
trisodium edta
trisodium ethylenediamine disuccinate
trisodium phosphate
triticum vulgare
tromethamine
tropolone
tuber melanosporum extract
ubiquinone
undecane
undecylenic acid
undecylenoyl glycine
urea
urtica dioica (nettle)
vaccinium macrocarpon fruit extract
vaccinium myrtillus fruit extract
valine
vanilla planifolia fruit extract
vinyl caprolactam/vp/dimethylamino ethyl methacrylate copolymer
vinyl dimethicone/methicone silsesquioxane crosspolymer
vitis vinifera
vitreoscilla ferment
vp/eicosene copolymer
vp/va copolymer
waxes
wheat amino acids
whey protein
xanthan gum
xylitol
xylitylglucoside
yucca schidigera root extract
zb hydrolysed wheat proteins powder (100%) (wm <3.500 da)
zea mays
zinc chloride
zinc lactate
zinc oxide
zinc pca
zinc phosphate
zinc stearate
zinc sulfate
zingiber officinale root extract

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