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(54) Title: A COSMETIC COMPOSITION AND THE USE THEREOF AND A METHOD FOR IMPROVING SENSORY CHARACTERISTICS

(57) Abstract: The present invention provides a cosmetic composition, comprising (a) 0.01wt%-2.0wt% of at least one gel-forming (meth)acrylic polymer, (b) 0.01wt%-1.0wt%, excluding 1.0wt%, of at least one non-ionic emulsifier, which is selected from the group consisting of polyethylene glycol diester of fatty acids, polypropylene glycol diester of fatty acids and poly(ethylene-co-propylene glycol) diesters of fatty acids, (c) 0.01wt%-1.0wt%, of at least one solubilizer having an HLB value in the range of 12-20, and (d) water, each based on the total weight of the cosmetic composition, wherein said composition is in gel or oil in water emulsion form, preferably in gel form. The cosmetic composition of the invention is in the form, refreshing, non-greasy and easier to distribute.



WO 2021/110733 A1

A COSMETIC COMPOSITION AND THE USE THEREOF AND A METHOD FOR IMPROVING SENSORY CHARACTERISTICS

TECHNICAL FIELD

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The present invention relates to a cosmetic composition in gel or oil in water emulsion form and use thereof, and a method for improving sensory characteristics by applying the cosmetic composition onto skin.

10 BACKGROUND OF THE INVENTION

The skin needs to be moisturized in order to maintain healthy condition. To date, moisturizing products is the primary measure. In the cosmetics and personal care market, many moisturizing products exist, such as those described in patent applications WO2005/095462 and FR2902333.

15 Skin moisturizing products may be classified into toner, milk, cream, facial mask, essence, hydrator and the like.

CN 110192999A discloses a makeup base in the form of O/W (oil-in-water), which comprises a water-in-oil dimyristyl phosphate emulsifier 0.2%-0.5%, an oil-in-water PPG-10 cetyl ether
20 phosphate 1%-2% and an acrylates/Beheneth-25 Methacrylate Copolymer 1%-1.5%. Said makeup base may produce refreshing-feeling and moisturizing effect. However, said makeup base has creamy appearance, which is less attractive to consumers.

CN 109172386A discloses a composite moisturizing hydrogel, which comprises the following
25 components in mass percentages: 100-500 ppm of oligopeptide, 1-10% of purslane extract, 1-5% of chamomile extract, 0.2-1% of volatile oil of rhizoma acori tatarinowii, 10-30% of glycerol polyacrylate, 1-5% of propylene glycol, 1-5% of glycerol, 0.1-0.5% of p-hydroxyacetophenone, 0.1-0.5% of octyl glycol and the balance of deionize water. This document mentions the use of polyacrylate in moisturizing products. However, said composite hydrogel has a high polymer
30 content, which results in strong greasy feeling.

KR 20180102827A discloses a hydrogel-type moisturizing cosmetic composition prepared from a hydrophilically modified lipid macromolecule, which has a self-assembled gel property. Said composition comprises 1-15% of hydrophilically modified lipid polymer, based on the total
35 weight of the composition. Said composition may form a strong skin protection membrane promoting transepidermal absorption of water-soluble or oil-soluble active ingredients. However, said composition still has a high polymer content which may cause negative impact on skin feeling.

The products as described in the above documents are always unsatisfactory in some respects such as moisturizing rate, refreshing feeling, spreadability, appearance, etc. Accordingly, there remains a need to obtain an improved cosmetic composition being able to overcome the above disadvantages and develop a method for improving sensory characteristics by applying the
5 cosmetic composition onto skin.

SUMMARY OF THE INVENTION

The inventors have surprisingly found that the combination of a non-ionic emulsifier with a
10 solubilizer having an HLB value in the range of 12-20 makes it possible to prepare a cosmetic composition which comprises a less amount of a gel-forming (meth)acrylic polymer. In addition, the cosmetic composition is refreshing, non-greasy and easier to distribute.

In a first aspect, the invention provides a cosmetic composition, comprising
15 (a) 0.01wt%-2.0wt% of at least one gel-forming (meth)acrylic polymer,
(b) 0.01wt%-1.0wt%, excluding 1.0wt%, of at least one non-ionic emulsifier, which is selected from the group consisting of polyethylene glycol (hereinafter designated as PEG) diester of fatty acids, polypropylene glycol (hereinafter designated as PPG) diester of fatty acids and poly(ethylene-co-propylene glycol) diesters of fatty acids,
20 (c) 0.01wt%-1.0wt%, of at least one solubilizer having an HLB value in the range of 12-20,
and
(d) water,
each based on the total weight of the cosmetic composition,
wherein said composition is in gel or oil-in-water emulsion form, preferably in gel form.

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In a second aspect, the invention provides use of the above-mentioned cosmetic composition for the preparation of personal care products.

In a third aspect, the present invention provides a method for improving sensory characteristics
30 by applying the cosmetic composition onto at least one part of skin.

The cosmetic composition of the invention is in gel or oil-in-water emulsion form, which is attractive to consumers. Moreover, the present cosmetic composition in gel or oil-in-water emulsion form comprising a small amount of polymers is refreshing, non-greasy and easier to
35 distribute. Cosmetic composition in gel form are preferred, as gels are easy to apply, afford a more consistent and precise coverage than liquids and are not as drying to the skin as powders.

The aspects of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and the specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

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DETAILED DESCRIPTION OF THE INVENTION

The following description of the preferred embodiment(s) is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

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As used throughout, ranges are used as shorthand for describing each and every value that is within the range. Any value within the range can be selected as the terminus of the range. Unless otherwise specified, all percentages and amounts expressed herein and elsewhere in the description should be understood to refer to percentages by weight. For example, the symbol "wt%" means percentages by weight.

15

In one aspect, the invention provides a cosmetic composition, comprising

(a) 0.01wt%-2.0wt% of at least one gel-forming (meth)acrylic polymer,

(b) 0.01wt%-1.0wt%, excluding 1.0wt%, of at least one non-ionic emulsifier, which is selected from the group consisting of polyethylene glycol diester of fatty acids, polypropylene glycol diester of fatty acids and poly(ethylene-co-propylene glycol) diesters of fatty acids,

20

(c) 0.01wt%-1.0wt%, of at least one solubilizer having an HLB value in the range of 12-20, and

25

(d) water,

each based on the total weight of the cosmetic composition,

wherein said composition is in gel or oil-in-water emulsion form, preferably in gel form.

30

As used herein, the term "gel" refers to a formulation that is applied to body surfaces such as the skin. A gel is solid and/or jelly-like material that can have properties ranging from soft and weak to hard and tough. Gel is defined as a substantially dilute cross-linked system, which exhibits no flow when in steady-state.

35

As used herein, the term "oil-in-water emulsion" is used as a generic term for a mixture of two immiscible phases wherein an oil (dispersed phase) is dispersed in an aqueous solution (the continuous phase).

In an embodiment, the gel-forming (meth)acrylic polymer used in the invention may be, in particular, hydrophilic (meth)acrylic polymers, preferably selected from the completely neutralized or at least partially neutralized (meth)acrylic homopolymers or copolymers.

5 In an embodiment, the gel-forming (meth)acrylic polymer used in the invention may be, for example, a salt (such as sodium salt or potassium salt) of (meth)acrylic homopolymer or copolymer, examples that may include but not limit to Sodium polyacrylate (such as Cosmedia[®] SP, Cosmedia[®] ACE and Cosmedia[®] SPL from BASF), partially neutralized sodium polyacrylate that are in the form of an inverse emulsion comprising at least one polar oil (such as Luvigel[®]
10 EM from BASF).

In an embodiment, the gel-forming (meth)acrylic polymer may also include poly(meth)acrylic acid comprising a hydrophilic polyalkoxide segment terminated with a hydrophobic group. The polyalkoxide segment usually consists of polyethylene oxide units or polypropylene oxide units
15 or combinations thereof situated between the ethylenic unsaturated bond at one terminus of the molecule and a terminal hydrophobic group at the other terminus. The hydrophobic group can be selected from a long chain hydrocarbon group containing 8 to 30 carbon atoms. Non-limiting example of those polymers include Tinovis[®] GTC (INCI: Acrylates/Beheneth-25 Methacrylate Copolymer); Aculyn[®] 22 (INCI: Acrylates/Steareth-20 Methacrylate Copolymer); Aculyn[®] 88
20 (INCI: Acrylates/Steareth-20 Methacrylate Crosspolymer; Acrylated/Steareth-20 Itaconate copolymer; Acrylate/Ceteth-20 Itaconate copolymer and Acrylates/Palmeth25).

In an embodiment, the gel-forming (meth)acrylic polymer used in the invention generally has a weight-average molecular weight in a range of 10,000 to 1,000,000 daltons, preferably 15,000
25 to 750,000 daltons, more preferably 20,000 to 500,000 daltons, most preferably 25,000 to 250,000 daltons, which may be measured by conventional techniques such as GPC.

In an embodiment, based on the total weight of the cosmetic composition, the gel-forming (meth)acrylic polymer may be present in an amount of from 0.05wt% to 2.0wt%, 0.05wt% to
30 1.8wt%, 0.05wt% to 1.5wt%, from 0.1wt% to 1.5wt%, from 0.2wt% to 1.2wt%, from 0.3wt% to 1.2wt%, from 0.4wt% to 1.2wt%.

In an embodiment, suitable non-ionic emulsifiers for the present invention are preferably those which have a polar middle part and non-polar end part. The middle part for example consists of
35 a long chain ethylene oxide unit which has been esterified with fatty acids at the ends. The non-ionic emulsifiers used in the present invention may be selected from the group consisting of polyethylene glycol diester of fatty acid (hereinafter referred to as PEG-n-diester), polypropylene glycol diester of fatty acid (hereinafter referred to as PPG-m diester) and poly(ethylene-co-

propylene glycol) diester of fatty acid (hereinafter referred to as PEG/PPG-p/q diester), wherein said fatty acid may be saturated or unsaturated fatty acid having 8 to 30 carbon atoms, preferably 12-30 carbon atoms, more preferably 12- 24 carbon atoms.

5 Suitable non-ionic emulsifiers for the present invention can be PEG-n diester, PPG-m diester and PEG/PPG-p/q diester, wherein n is 30-250, preferably 60-200, more preferably 90-150; m is 10-50, preferably 20-40; p is 10-50, preferably 20-40; and q is 1-10, preferably 1-5. Preferably, said diester may include, for example, dilaurate, dibehenate, distearate, diisostearate, dioleate and diricinoleate, dimyristate, dipalmitate, more preferably dilaurate, distearate and diisostearate,
10 most preferably distearate. Examples of such non-ionic emulsifier are PEG-32 distearate, PEG-75 distearate, PEG-120 distearate, PEG-150 distearate (Eumulgin® EO 33 from BASF) PEG-175 distearate, PEG-190 distearate, PEG-250 distearate, PEG/PPG-32/3 diricinoleate and PPG-30 dioleate, PEG-150 dibehenate, PEG-90 diisostearate, PEG-175 diisostearate, PEG-150 dioleate, and PEG-120 methylglucose dioleate.

15 In an embodiment, the non-ionic emulsifier used in the invention generally has a weight-average molecular weight in a range between 1500 and 12000 daltons, preferably between 2000 and 10000 daltons, more preferably between 3000 and 9000 daltons, most preferably between 4000 and 8000 daltons, especially preferably between 4000 and 7000 daltons.

20 In an embodiment, based on the total weight of the cosmetic composition, the non-ionic emulsifier may be present in an amount of from 0.02wt% to 0.9wt%, from 0.03wt% to 0.8wt%, from 0.04wt% to 0.7wt%, from 0.05wt% to 0.6wt%, from 0.06wt% to 0.5wt%, from 0.07wt% to 0.4wt%, from 0.08wt% to 0.3wt%, preferably from 0.07wt% to 0.4wt%, more preferably from
25 0.08wt% to 0.3wt%, most preferably 0.1wt%.

In an embodiment, the solubilizers used in the invention may preferably have an HLB value in the range of 15-20. Suitable solubilizers may include nonionic emulsifiers and especially nonionic surfactants which contain a polyalkylene oxide moiety, the residue of a fatty acid or
30 fatty alcohol and optionally the residue of an aliphatic polyhydric alcohol as linking groups. Preferably, the polyalkylene oxide is often polyethylene oxide, or polypropylene oxide or mixed polyethylene oxide/propylene oxide. Generally, the solubilizer contains from 3 to 100 and especially from 5 to 80 alkylene oxide units. The fatty acid or fatty alcohol often contains from 8 to 24 and especially from 12 to 24 carbon atoms, and in many instances is linear. The
35 solubilizer having an HLB value in the range of 12-20 used in the invention may be selected from the group consisting of a polyethylene glycol ether of fatty alcohol, a polyethylene glycol ether of hydrogenated castor oil, a polyethylene glycol derivative of a sorbitan ester, a polysorbate, a glycerol ester, a polyethylene glycol derivative of a glycerol ester, an alkyl

phosphate, and an alkyl sulfate, and the like. Further examples of useful non-ionic emulsifier are listed in the CTFA Cosmetic Ingredient Handbook, second edition, 1990.

In an embodiment, examples of the solubilizer suitable to be used in the invention include but are not limited to PEG-40 castor oil, PEG-40 hydrogenated castor oil (Eumulgin® CO 40 from BASF), PEG-60 castor oil, PEG-60 hydrogenated castor oil (Eumulgin® CO 60 from BASF), cetareth-2 to 18, ceteth-2 to 16, Isoceteth-2 to 30, Laureth-2 to 16, nonoxynol-2 to 18, oleth-5 to 20, PEG-20 dilaurate, PEG-20 glyceryl laurate, PEG-75 sorbitan laurate, polysorbate-20 to 80, steareth-5 to 20, PPG-1-PEG-9 Lauryl glycol ether (Eumulgin® L).

10

In an embodiment, based on the total weight of the cosmetic composition, the solubilizer may be present in an amount of from 0.01wt% to 0.9wt%, preferably 0.05 wt% to 0.8 wt%, more preferably 0.1 wt% to 0.5 wt%.

15 In an embodiment, the non-ionic emulsifier (b) may be different from the solubilizer (c).

In a preferred embodiment, the cosmetic composition according to the present invention, comprising

- (a) 0.01wt%-2.0wt% of a gel-forming (meth)acrylic polymer,
 - 20 (b) 0.01wt%-1.0wt%, excluding 1.0wt%, of at least one non-ionic emulsifier, which is selected from the group consisting of polyethylene glycol diester of fatty acids, polypropylene glycol diester of fatty acids and poly(ethylene-co-propylene glycol) diesters of fatty acids,
 - (c) 0.01wt%-1.0wt%, of at least one solubilizer having an HLB value in the range of 12-20,
 - 25 (d) water, and
 - (e) 0-50wt% of at least one emollient,
- each based on the total weight of the cosmetic composition, wherein said composition is in gel or oil-in-water emulsion form, preferably in gel form.

30 In an embodiment, suitable emollients may be selected from the group consisting of oils of animal or plant origin, mineral oils, synthetic glycerides, fatty acid esters, fatty alcohols, fatty alcohol ether, silicone oils and aliphatic hydrocarbons. These materials may be volatile or non-volatile. Volatile oils may be used in combination with non-volatile oils and/or other wax mentioned in the present description. Suitable oil may be selected from aliphatic hydrocarbons, 35 plant oils, fatty alcohols, esters of fatty alcohols and/or fatty acids other than animal or plant oils and synthetic glycerides, or mixtures thereof. Particularly suitable oil may be selected from the group consisting of plant oils, silicone oils, esters of fatty alcohols, and mixtures thereof.

Suitable plant oils for use in the cosmetic composition of the invention may nonexclusively include linseed oil, camellia oil, sunflower oil, apricot oil, hazelnut oil, vegetable squalane oil, sasanqua oil, grapeseed oil, peanut oil, coconut oil, palm kernel oil, soybean oil, macadamia nut oil, avocado oil, safflower oil, sweet almond oil, apricot oil, corn oil, jojoba oil, olive oil, sesame oil, palm oil, eucalyptus oil, rosemary oil, lavender oil, pine oil, thyme oil, mint oil, cardamom oil, orange-blossom oil, bran oil, rice oil, rapeseed oil, castor oil, and mixtures thereof.

Suitable animal oils for use in the cosmetic composition of the invention may nonexclusively include squalene, perhydro-squalene, squalane and mixtures thereof.

Silicone oils for use in the present invention either may be volatile and/or non-volatile silicon oils. Preferred silicone oils are non-volatile silicon oils known with their INCI name as dimethicone and dimethiconol. Volatile silicone oils such as cyclomethicones may be used in combination with non-volatile silicones and/or other wax and/or oils mentioned in the present description. As examples of silicone oils, mention can be made of, for example, linear organopolysiloxanes such as dimethylpolysiloxane, methylphenylpolysiloxane, methylhydrogenpolysiloxane, and the like; cyclic organopolysiloxanes such as cyclopentasiloxane, cyclohexylsiloxane, octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, and mixtures thereof. Furthermore, arylated silicones comprising at least one aryl group in its molecule such as phenyl methiocone, phenyl trimethicone, diphenyl dimethicone, diphenylsiloxy phenyl trimethicone, tetramethyl tetraphenyl trisiloxane, triphenyl trimethicone, tetramethyl tetraphenyl trisiloxane and trimethyl pentaphenyl trisiloxane may be comprised in the compositions of the invention.

In some embodiments, suitable emollients may include guerbet alcohols based on fatty alcohols having 6 to 22, preferably 8 to 18 carbon atoms (for example Eutanol® G from BASF), esters of linear C₆-C₂₂ fatty acids with linear or branched C₆-C₂₂ fatty alcohols and esters of branched C₆-C₁₃ carboxylic acids with linear or branched C₆-C₂₂ fatty alcohols, such as e.g. myristyl myristate, myristyl palmitate, myristyl stearate, myristyl isostearate, myristyl oleate, myristyl behenate, myristyl erucate, cetyl myristate, cetyl palmitate, cetyl stearate, cetyl isostearate, cetyl oleate, cetyl behenate, cetyl erucate, stearyl myristate, stearyl palmitate, stearyl stearate, stearyl isostearate, stearyl oleate, stearyl behenate, stearyl erucate, isostearyl myristate, isostearyl palmitate, isostearyl stearate, isostearyl isostearate, isostearyl oleate, isostearyl behenate, isostearyl oleate, oleyl myristate, oleyl palmitate, oleyl stearate, oleyl isostearate, oleyl oleate, oleyl behenate, oleyl erucate, behenyl myristate, behenyl palmitate, behenyl stearate, behenyl isostearate, behenyl oleate, behenyl behenate, behenyl erucate, erucyl myristate, erucyl palmitate, erucyl stearate, erucyl isostearate, erucyl oleate, erucyl behenate and erucyl erucate; esters of C₃-C₃₈ alkyl hydroxycarboxylic acids with linear or branched C₆-C₂₂ fatty alcohols, for

example diethylhexyl malate; and esters of linear or branched fatty acids with polyhydric alcohols, such as propylene glycol, dipropylene glycol or tripropylene glycol, for example. Also suitable synthetic glycerides are liquid mono-, di- and triglyceride blends based on C₆-C₁₈ fatty acids; such as triglycerides based on C₆-C₁₀ fatty acids (Myritol[®] 312 from BASF); esters of C₆-C₂₂ fatty alcohols or guerbet alcohols with aromatic carboxylic acids, such as benzoic acid; esters of C₂-C₁₂ dicarboxylic acids with linear or branched alcohols having 1 to 22 carbon atoms or polyols having 2 to 10 carbon atoms and 2 to 6 hydroxyl groups; vegetable oils; branched primary alcohols; linear and branched C₆-C₂₂ fatty alcohol carbonates, such as e.g. dicaprylyl carbonate (Cetiol CC); guerbet carbonates based on fatty alcohols having 6 to 18; esters of benzoic acid with linear or branched C₆-C₂₂ alcohols; linear or branched, symmetrical or asymmetrical dialkyl ethers having 6 to 22 carbon atoms per alkyl group, such as e.g. dicaprylyl ether (Cetiol OE); and aliphatic hydrocarbons, such as e.g. mineral oil, vaseline, petroleum jelly, squalane, squalene or dialkyl cyclohexanes.

In some embodiments, suitable emollients may also include cosmetically acceptable wax, those of ordinary skill in the art will readily identify what is meant by this term. Examples are carnauba, ozokerite, glyceryl tribehenate, beeswax, candelilla, paraffin, bayberry wax, lanolin, microcrystalline wax, montan, rice wax, solid mono-, di- or triglycerol esters of C₁₂-C₃₆ fatty acids, polyethylene, polyethylene/polyvinylacetate copolymers, polyethylene/polyacrylic acid copolymers, C₁₂-C₃₆ fatty alcohols, and solid esters of C₁₂-C₃₆ fatty alcohols and acids, provided that the wax used in this invention is solid at room temperature (25° C.)

In an embodiment, based on the total weight of the cosmetic composition, the emollient may be present in an amount of preferably from 0-40wt%, more preferably 0-30wt%, most preferably 0-20wt%, such as from 0.01wt% to 20wt%, from 0.1wt% to 18wt%, from 1wt% to 16wt%, from 3wt% to 14wt%, from 5wt% to 12wt%, from 7wt% to 12wt%, from 8wt% to 12wt%.

In a preferred embodiment, the cosmetic composition according to the present invention, comprising

- (a) 0.01wt%-2.0wt% of a gel-forming (meth)acrylic polymer,
- (b) 0.01wt%-1.0wt%, excluding 1.0wt%, of at least one non-ionic emulsifier, which is selected from the group consisting of polyethylene glycol diester of fatty acids, polypropylene glycol diester of fatty acids and poly(ethylene-co-propylene glycol) diesters of fatty acids,
- (c) 0.01wt%-1.0wt%, of at least one solubilizer having an HLB value in the range of 12-20,
- (d) water,
- (e) 0-50wt% of at least one emollient,
- (f) 0-10wt% of at least one co-emulsifier, and

each based on the total weight of the cosmetic composition,
wherein said composition is in gel or oil-in-water emulsion form, preferably in gel form.

In an embodiment, the cosmetic composition of the present invention further comprises at least
5 one co-emulsifier which is able to modify the viscosity of the composition to form gel or oil-in-
water emulsion texture. Suitable for the present invention include but are not limit to fatty
alcohols or hydroxy fatty alcohols having 8 to 22 and preferably 12 to 18 carbon atoms, and
also partial glycerides, fatty acids having 8 to 22 carbon atoms, or hydroxy fatty acid. For
example, suitable fatty alcohols may be selected from the group consisting of capryl alcohol,
10 decyl alcohol, dodecyl alcohol, tetradecyl alcohol, hexadecyl alcohol, cetearyl alcohol, stearyl
alcohol, eicosanol and behenyl alcohol, preferably from the group consisting of tetradecyl
alcohol, hexadecyl alcohol, cetearyl alcohol and stearyl alcohol. Particularly, the co-emulsifier is
cetearyl alcohol (Lanette[®] O from BASF).

15 In an embodiment, based on the total weight of the cosmetic composition, the co-emulsifier may
be present in an amount of from 0.01wt% to 10wt%, from 0.05wt% to 9wt%, from 0.1wt% to
8wt%, from 0.2wt% to 7wt%, from 0.4wt% to 6wt%, from 0.6wt% to 5wt%, from 0.8wt% to 4wt%,
from 1.0wt% to 3wt%, from 1.2wt% to 2wt%, preferably from 1.0wt% to 3wt%, more preferably
from 1.2wt% to 2wt%.

20 In an embodiment, based on the total weight of the cosmetic composition, the weight ratio of the
non-ionic emulsifier (b) and the solubilizer having a HLB value in the range of 12-20 (c) may be
in the range of 1:10 to 10:1, preferably 1:7 to 7:1, more preferably 1:5 to 5:1, most preferably
1:3 to 3:1, especially preferably 1:2 to 2:1. Particularly preferably, said weight ratio may be 1:1.
25 Particularly, in an embodiment where emollients are present and the composition is in gel form,
based on the total weight of the cosmetic composition, the weight ratio of the non-ionic
emulsifier (b) and the solubilizer having a HLB value in the range of 12-20 (c) may be in the
range of 1:10 to 5:1, preferably 1:7 to 5:1, more preferably 1:5 to 5:1, most preferably 1:3 to 3:1,
especially preferably 1:2 to 2:1. Particularly preferably, said weight ratio may be 1:1.

30 In an embodiment, the inventive cosmetic composition in gel form may have a viscosity in the
range of 2,000 to 200,000 cps, preferably 4,000 to 180,000 cps, more preferably 6,000 to
160,000 cps, most preferably 8,000 to 140,000 cps. In an embodiment, the inventive cosmetic
composition in oil-in-water emulsion form may have a viscosity in the range of 2,000 to 500,000
35 cps, preferably 4,000 to 450,000 cps, more preferably 6,000 to 400,000 cps, most preferably
8,000 to 350,000 cps, particularly preferably 10,000 to 300,000 cps, especially preferably
12,000 to 250,000. Viscosity can be measured at room temperature with Brookfield RV
viscometer using Zahn viscosity cup #6.

According to any one of the invention embodiments, the cosmetic composition of the present invention comprises water, such as purified water, deionized water or floral water, and optionally one or more water miscible solvents. According to any one of the inventive embodiments, the aqueous phase may be any cosmetically acceptable water-based materials, such as deionized water, purified water or floral water.

In an embodiment, based on the total weight of the cosmetic composition, the water may be present in an amount of from 20wt% to 99wt%, or 25wt% to 95wt%, or 30wt% to 90 wt%, preferably from 40wt% to 85wt%, more preferably 50wt% to 80wt%.

The cosmetic composition of the present invention may further comprise additional auxiliaries as described below, which may be present in an amount of from 0wt% to 10wt%, preferably 0.01wt% to 8wt%, more preferably 0.01wt% to 6wt%, most preferably 0.01wt% to 5wt%.

According to any one of the invention embodiments, the cosmetic composition of the present invention may further comprise additional surfactant including those commonly used surfactants for cosmetic composition, non-limiting examples of which include non-ionic emulsifying agents such as sugar ester and polyesters, alkoxyated sugar ester and polyesters, C₁-C₃₀ fatty acid esters of C₁-C₃₀ fatty alcohols, alkoxyated derivatives of C₁-C₃₀ fatty alcohols, polyethoxyated C₁-C₃₀ fatty alcohols such as ethoxyated behenyl alcohol sold under the tradename Eumulgin[®] BA 25 from BASF, polyglyceryl esters of C₁-C₃₀ fatty acids, C₁-C₃₀ esters of polyols, C₁-C₃₀ ethers of polyols. In some embodiments, the additional nonionic emulsifying agent is present in an amount of 0 to 10wt%, or 1wt% to 8wt%, or 2wt% to 7wt% by the total weight of the composition.

The cosmetic composition of the present invention may further comprise anionic emulsifying agents such as alkyl phosphates, polyoxyalkylene fatty ester phosphates, fatty acid amides, acyl lactylates, anionic sulfate, anionic sulfonate, anionic sarcosinate, isethionates, taurates, lactylates, glutamates, alkyl succinates and sulfosuccinates and mixtures thereof.

The cosmetic composition of the present invention may further comprise amphoteric emulsifiers. Non-limiting examples of zwitterionic surfactants are those selected from the group consisting of betaines, sultaines, hydroxysultaines, alkyliminoacetates, iminodialkanoates, aminoalkanoates, and mixtures thereof.

The cosmetic composition of the present invention may comprise, besides the above-mentioned components, additives generally blended in a cosmetic composition such as moisturizers, antiwrinkle/antiaging agents, cellular stimulants, anti-inflammatory agents, antioxidants, UV

absorption/scattering agents, preservatives, pH adjusters, colorants, flavors, pearlizers, capsule and the like, as long as the characteristics of the cosmetic composition of the invention are not impaired.

5 Suitable moisturizers for use in the cosmetic composition of the invention may nonexclusively include polyvalent alcohol such as glycerol, 1,3-butylene glycol, 1,2-propanediol, 1,3-propanediol, pentanediol, hexanediol, heptanediol, decanediol, sorbitol and the like; mucopolysaccharides such as sodium hyaluronate, chondroitin sulfate and the like; amino acids such as alanine, sodium pyrrolidonecarboxylate and the like or a salt thereof. In some
10 embodiments, the moisturizer is present in an amount of 0 to 10wt%, or 1wt% to 9wt%, or 2wt% to 8wt%, or 3 wt% to 7wt% by the total weight of the composition.

Suitable antiwrinkle/antiaging agents for use in the cosmetic composition of the invention may nonexclusively include hydrolyzed eggshell membrane, atelocollagen, rice bran extract, rooibos
15 extract and the like.

Suitable cellular stimulants for use in the cosmetic composition of the invention may nonexclusively include sodium salt of deoxyribonucleic acid, yeast extract, Asian *ginseng* extract and the like.

20 Suitable anti-inflammatory agents for use in the cosmetic composition of the invention may nonexclusively include allantoin, aloe vera extract, krantz aloe extract, chamomile extract, licorice extract, dipotassium glycyrrhizate and the like.

25 Suitable antioxidants for use in the cosmetic composition of the invention may nonexclusively include vitamin E such as tocopherol acetate, d- δ -tocopherol, dl- α -tocopherol, natural vitamin E and the like; polyphenols such as glucosylrutin, tannic acid and the like; gallic acids such as gallic acid, propyl gallate and the like and a derivative thereof; plant extracts such as Japanese basil leaf extract, sage leaf extract and the like.

30 Suitable UV absorption/scattering agents for use in the cosmetic composition of the invention may nonexclusively include methylene bis-benzotriazolyl tetramethylbutylphenol, bis-ethylhexyloxyphenol methoxyphenyl triazine, diethylamino hydroxybenzoyl hexyl benzoate, paradimethylaminobenzoate 2-ethylhexyl, oxybenzone-3-(2-hydroxy-4-methoxybenzophenone),
35 paramethoxycinnamic acid 2-ethylhexyl, 4-tert-butyl-4'-methoxydibenzoylmethane, titanium oxide and the like.

Suitable preservatives for use in the cosmetic composition of the invention may nonexclusively include sodium benzoate, phenoxyethanol, paraoxybenzoates such as methyl p-hydroxybenzoate, ethyl parahydroxybenzoate, propyl p-hydroxybenzoate and the like.

- 5 Suitable pH adjusters for use in the cosmetic composition of the invention may nonexclusively include inorganic and organic acids and bases and in particular aqueous ammonia, succinic acid, citric acid, sodium citrate, tartaric acid, sodium tartarate, sodium hydroxide, potassium hydroxide, triethanolamine, gluconolactone, preferably, the pH adjuster is aminomethyl propanol, triethanolamine, L-arginine, trimethamine, PEG-15 cocamine, diisopropanolamine,
10 triisopropanolamine or tetrahydroxypropyl ethylenediamine.

Suitable colorants for use in the cosmetic composition of the invention may nonexclusively include inorganic pigments such as iron blue, ultramarine blue, red iron oxide, black iron oxide, yellow iron oxide, talc, kaolin, manganese violet, carbon black and the like; natural dyes such as
15 β -carotene, lycopene, shisonin, safflor yellow, shikonin, chlorophyll and the like, tar pigments such as red No. 102, red No. 201, Blue No. 202 and the like, lake pigments such as red No. 3 aluminum lake, yellow No. 4 aluminum lake, blue No. 1 barium lake and the like.

Suitable flavors for use in the cosmetic composition of the invention may nonexclusively include
20 natural flavors such as cinnamon oil, lavender oil, jasmine oil, peppermint oil, orange oil, rose oil and the like; synthetic flavors such as citronellol, eugenol, geraniol, menthol and the like.

The composition of the invention may also include other additives such as, but not limited to, abrasives, absorbents, a foam building agent, antifoaming agents, antimicrobial agents (e.g.,
25 iodopropyl butylcarbamate), biological additives, bulking agents, chelating agents, film formers or materials, e.g., polymers for aiding the film-forming properties of the composition (e.g., copolymer of eicosene and vinyl pyrrolidone), propellants, reducing agents, skin bleaching and lightening agents (e.g., hydroquinone, kojic acid, ascorbic acid, magnesium ascorbyl phosphate, ascorbyl glucosamine), skin soothing and/or healing agents (e.g., panthenol and derivatives
30 (e.g., ethyl panthenol), aloe vera, pantothenic acid and its derivatives, allantoin, bisabolol, silicones, and fatty alcohols.

One or more kinds of the above-mentioned additives can be present in the cosmetic composition of the invention in amounts generally used for cosmetic compositions, as long as
35 the characteristics of the cosmetic composition of the invention are not impaired.

In a second aspect, the invention provides use of the cosmetic composition for the preparation of personal care products.

In an embodiment, the personal care products may be one of the following: skin care products, baby care products, body care products, hair care products, cleansing products, makeup removers, massage products, bath products, shaving products, cosmetics, tooth pastes, deodorants, anti-perspirants, insect repellants, shampoos, hair conditioners, sun care products, shower gels, hair styling gels, hair anti-dandruff products, hair growth promoter products, hair colorant products, hair bleaching agent products, hair anti-frizzing agent products, hair relaxer products, lubricating gel products, and spermicide gel products.

For the purposes of the present invention, the term “personal care” is intended to refer to cosmetic and skin care compositions for application to the skin, including, for example, makeup removers, body washes and cleansers, as well as leave-on application to the skin. In the present invention, the term “personal care” is also intended to refer to hair care compositions including, for example, shampoos, leave-on conditioners, rinse-off conditioners, styling gels, pomades, hair coloring products (e.g., two-part hair dyes), hairsprays, and mousses. Preferably, the personal care composition is cosmetically acceptable. “Cosmetically acceptable” is intended to underscore that materials that are toxic when present in the amounts typically found in personal care compositions are not contemplated as part of the present disclosure.

The composition and formulations and products containing the cosmetic composition of the present invention may be prepared using methodology that is well known by an artisan of ordinary skill.

In a third aspect, the present invention provides a method for improving sensory characteristics, such as improved distribution, improved watery feel, less waxy feel, less oiliness when being applied onto at least one part of skin.

The aspects of the present invention will become apparent from the specific examples below. It should be understood that the specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

EXAMPLES

The invention will be illustrated in detail by the following Examples.

1. Preparation examples

The following raw materials were used.

	Myritol® 312	Caprylic/Capric Triglyceride
	Lanette® O	Cetearyl Alcohol
5	Eumulgin® BA 25	Beheneth-25
	1,3-BG	Butylene glycol
10	Eumulgin® EO 33	PEG-150 Distearate
	Eumulgin® CO 40	PEG-40 Hydrogenated Castor Oil
	Tinovis® GTC-UP	Acrylates/Beheneth-25 Methacrylate Copolymer
15	Content of Active Ingredient (hereinafter referred to as "a.i."): ~ 30%	
	Cosmedia® Ace	Sodium Polyacrylate, Dicaprylyl Carbonate, Polyglyceryl-3 Caprate
	Content of Active Ingredient: ~ 50%	
20	Luvigel® EM	Caprylic/Capric Triglyceride & Sodium Acrylates Copolymer
	Content of Active Ingredient: ~ 25%	
	Cosmedia® SP	Sodium Polyacrylate
	Content of Active Ingredient: > 88%	
25	Neutrol TE	Tetrahydroxypropyl Ethylenediamine
	Phenonip XB	Phenoxyethanol (and) Methylparaben (and) Ethylparaben (and) Propylparaben
30		

The above raw materials are available from BASF SE.

Cosmetic compositions whose compositions are shown in Tables 1 and 2 were prepared as follows.

35

To a 200 ml beaker, emollient, co-emulsifier and non-ionic emulsifier and additional emulsifying agent were added to form oil phase (blend 1) which was then heated to 80°C under stirring at 500 rpm. To another 300ml beaker, water, solubilizer, moisturizer were added to form water

phase (blend 2) which was then heated to 80°C under stirring at 1,500 rpm. Subsequently, the gel-forming (meth)acrylic polymer was dispersed in water/oil phase (Tinovis GTC UP in water phase, while Cosmedia ACE, Cosmedia SP and Luvigel EM in oil phase) with stirring at 1,500 rpm for 3 mins until homogeneous. Then, the oil phase was added into the water phase with stirring at 5,000 rpm for 8 mins, to give a homogeneous mixture which was then cooled down to room temperature. Finally, pH adjuster and preservative were added to the mixture.

The compositions in Tables 1-2 are based on the total weight of the composition.

2. Use examples

Prior to the start of the study, volunteers were given 5 to 10 minutes to acclimatize, depending
5 on the ambient conditions and/or how they feel. The study was carried out in a room prepared in
conformity with the DIN standard DIN Norm 10962 with a relative humidity of approx. 50% and a
temperature of approx. 23°C. After toxicological clearance, volunteers (all Chinese females)
tested the samples on forearms and gave score of “-1, -0.5, 0, 0.5 or 1”.

10 1) Distribution

150 µL of a sample in gel form was applied on the inside of the forearms. With the tips of the
index and middle finger, the applied sample was distributed with 20 circling movements. During
this action, the volunteers were asked to evaluate which product on the forearms produced less
resistance of the sample against the movement; the less resistance means an easier
15 distribution.

Score “-1” means significantly difficult distribution in comparison with the reference example;

Score “-0.5” means difficult distribution in comparison with the reference example;

Score “0” means identical distribution in comparison with the reference example;

20 Score “0.5” means easier distribution in comparison with the reference example;

Score “1” means significantly easier distribution in comparison with the reference example.

2) Watery in use

During the first 10 circle distribution, the volunteers were asked to evaluate which product on
25 the forearms contained more water, the more water means more watery feel in use.

Score “-1” means significantly less watery in use in comparison with the reference example;

Score “-0.5” means less watery in use in comparison with the reference example;

Score “0” means identical watery in use in comparison with the reference example;

30 Score “0.5” means more watery in use in comparison with the reference example;

Score “1” means significantly more watery in use in comparison with the reference example.

3) Oiliness in use

During the first 10 circle distribution, the volunteers were asked to evaluate which product on
35 the forearms produced heavier oily feel, the heavier oily feel means more oiliness in use.

Score “-1” means significantly more oiliness in use in comparison with the reference example;

Score “-0.5” means more oiliness in use in comparison with the reference example;

Score “0” means identical oiliness in use in comparison with the reference example;
 Score “0.5” means less oiliness in use in comparison with the reference example;
 Score “1” means significantly less oiliness in use in comparison with the reference example.

5 4) Waxy feel

150 µL of a sample was distributed till full absorption. Subsequently, the volunteers pressed the treated area with the index and middle finger strongly and moved both fingers from upper side to down, in order to feel the waxy feeling residue on the forearm. More resistance means more waxy feel.

10

Score “-1” means significantly more waxy feel in comparison with the reference example;
 Score “-0.5” means more waxy feel in comparison with the reference example;
 Score “0” means identical waxy feel in comparison with the reference example;
 Score “0.5” means less waxy feel in comparison with the reference example;
 15 Score “1” means significantly less waxy feel in comparison with the reference example.

The evaluation results were shown in Tables 3-4.

3. Results analysis

20

Table 3

Test	Tinovis® GTC-UP system		Cosmedia® Ace system		Luvigel® EM system		Cosmedia® SP system
	Ex. 1 VS.		Ex. 2 VS.		Ex. 3 VS.		Ex. 4 VS.
Reference sample	Com. Ex. 1	Com. Ex. 6	Com. Ex. 2	Com. Ex. 4	Com. Ex. 3	Com. Ex. 5	Com. Ex. 7
Distribution	0.5	0.5	1	0.5	0.5	0.5	1
Watery in use	0.5	1	1	1	0.5	0.5	0.5
Oiliness in use	0.5	0.5	1	0.5	0.5	0.5	0.5
Waxy feel	0.5	0	0	-0.5	0	0.5	0.5

In Table 3, Comparative examples 1-7 are used as the reference sample, and the score shown therein is obtained from Examples 1-4.

25

Table 4

Test	Tinovis® GTC-UP system		Cosmedia® Ace system		Luvigel® EM system		Cosmedia® SP system	
	Ex. 1 VS.		Ex. 2 VS.		Ex. 3 VS.		Ex. 4 VS.	
Reference Sample	Ex. 5	Com. Ex. 8	Ex. 6	Com. Ex. 9	Ex. 7	Com. Ex. 10	Ex. 8	Com. Ex. 11
Distribution	0.5	1	1	1	1	1	0.5	1
Watery in use	0	1	0.5	0.5	0.5	1	0.5	0.5
Oiliness in use	0	1	0	0.5	1	1	0.5	1
Waxy feel	0	0.5	0	0	0.5	0.5	0.5	0

In Table 4, Examples 5-8 and comparative examples 8-11 are used as the reference sample, and the score shown therein is obtained from Examples 1-4.

Tables 3 and 4 give the results from inventive examples and comparative examples.

5

As can be seen from Table 3, by comparison of example 1 with comparative examples 1 and 6, example 2 with comparative examples 2 and 4, example 3 with comparative example 3 and 5, example 4 with comparative example 7, the combination of Eumulgin EO 33 with Eumulgin CO 40 reduces the amount of Lanette O or of the gel-forming (meth)acrylic polymer in the cosmetic composition. In addition, it is obvious from Table 3 that examples 1-4 are better than comparative examples 1-7 in the following respects: easy distribution, more watery in use, less oiliness in use and/or less waxy feel.

10

Table 4 gives the evaluation results of several examples and comparative examples. It can be seen that, the lower the amount of Eumulgin EO 33 and Eumulgin CO 40, the better the efficacy of the resulting composition is in the following respects: easy distribution, more watery in use, less oiliness in use and/or less waxy feel.

15

CLAIMS

1. A cosmetic composition, comprising
- (a) 0.01wt%-2.0wt% of at least one gel-forming (meth)acrylic polymer,
- 5 (b) 0.01wt%-1.0wt%, excluding 1.0wt%, of at least one non-ionic emulsifier, which is selected from the group consisting of polyethylene glycol diester of fatty acids, polypropylene glycol diester of fatty acids and poly(ethylene-co-propylene glycol) diesters of fatty acids,
- (c) 0.01wt%-1.0wt%, of at least one solubilizer having an HLB value in the range of 12-20, and
- (d) water,
- 10 each based on the total weight of the cosmetic composition, wherein said composition is in gel or oil-in-water emulsion form, preferably in gel form.
2. The cosmetic composition according to claim 1, wherein based on the total weight of the cosmetic composition, the weight ratio of the non-ionic emulsifier (b) and the solubilizer (c) is in
- 15 the range of 1:10 to 10:1, preferably 1:7 to 7:1, more preferably 1:5 to 5:1, most preferably 1:3 to 3:1, especially preferably 1:2 to 2:1, particularly preferably 1:1.
3. The cosmetic composition according to claim 1 or 2, further comprising (e) 0-50wt% of at least one emollient.
- 20
4. The cosmetic composition according to claim 1 to 3, further comprising (f) 0-10wt% of at least one co-emulsifier.
5. The cosmetic composition according to claims 1 to 4, wherein the gel-forming (meth)acrylic
- 25 polymer is hydrophilic (meth)acrylic polymer, preferably selected from poly(meth)acrylic acid comprising a polyalkoxide hydrophilic segment terminated with a hydrophobic group or the completely neutralized or at least partially neutralized (meth)acrylic homopolymer or copolymer.
6. The cosmetic composition according to claims 4 or 5, wherein the co-emulsifier is selected
- 30 from the group consisting of fatty alcohols or hydroxy fatty alcohols having 8 to 22 and preferably 12 to 18 carbon atoms, fatty acids or hydroxy fatty acid having 8 to 22 carbon atoms.
7. The cosmetic composition according to claims 3 to 6, wherein the emollient is selected from the group consisting of oils of animal or plant origin, mineral oils, synthetic glycerides, fatty acid
- 35 esters, fatty alcohols, fatty alcohol ether, silicone oils and aliphatic hydrocarbons.
8. The cosmetic composition according to claims 1 to 7, wherein the non-ionic emulsifier is selected from the group consisting of polyethylene glycol diester of fatty acid, polypropylene

glycol diester of fatty acid and poly(ethylene-co-propylene glycol) diester of fatty acid, wherein said fatty acid is saturated or unsaturated fatty acid having 8 to 30 carbon atoms, preferably 12-30 carbon atoms, more preferably 12-24 carbon atoms.

- 5 9. The cosmetic composition according to claim 8, wherein the non-ionic emulsifier is selected from the group consisting of PEG-n diester, PPG-m diester and PEG/PPG-p/q diester, wherein n is 30-250, preferably 60-200, more preferably 90-150; m is 10-50, preferably 20-40; p is 10-50, preferably 20-40; and q is 1-10, preferably 1-5.
- 10 10. The cosmetic composition according to claim 8, wherein the diester includes dilaurate, dibehenate, distearate, diisostearate, dioleate and diricinoleate, dimyristate, dipalmitate, more preferably dilaurate, distearate and diisostearate, most preferably distearate.
- 15 11. The cosmetic composition according to claim 8, wherein the non-ionic emulsifier are PEG-32 distearate, PEG-75 distearate, PEG-120 distearate, PEG-150 distearate, PEG-175 distearate, PEG-190 distearate, PEG-250 distearate, PEG/PPG-32/3 diricinoleate and PPG-30 dioleate, PEG-150 dibehenate, PEG-90 diisostearate, PEG-175 diisostearate, PEG-150 dioleate, and PEG-120 methylglucose dioleate.
- 20 12. The cosmetic composition according to claims 1 to 11, wherein the solubilizer is selected from the group consisting of a polyethylene glycol ether of fatty alcohol, a polyethylene glycol ether of hydrogenated castor oil, a polyethylene glycol derivative of a sorbitan ester, a polysorbate, a glycerol ester, a polyethylene glycol derivative of a glycerol ester, an alkyl phosphate, and an alkyl sulfate.
- 25 13. The cosmetic composition according to claims 1 to 12, wherein the water is present in an amount of from 20wt% to 99wt%, or 25wt% to 95wt%, or 30wt% to 90wt%, preferably from 40wt% to 85wt%, more preferably 50wt% to 80wt%.
- 30 14. The cosmetic composition according to claims 1 to 13, wherein based on the total weight of the cosmetic composition, the gel-forming (meth)acrylic polymer is present in an amount of from 0.05wt% to 2.0wt%, 0.05wt% to 1.8wt%, 0.05wt% to 1.5wt%, from 0.1wt% to 1.5wt%, from 0.2wt% to 1.2wt%, from 0.3wt% to 1.2wt%, from 0.4wt% to 1.2wt%.
- 35 15. The cosmetic composition according to claims 1 to 14, wherein based on the total weight of the cosmetic composition, the non-ionic emulsifier is present in an amount of from 0.02wt% to 0.9wt%, from 0.03wt% to 0.8wt%, from 0.04wt% to 0.7wt%, from 0.05wt% to 0.6wt%, from

0.06wt% to 0.5wt%, from 0.07wt% to 0.4wt%, from 0.08wt% to 0.3wt%, preferably from 0.07wt% to 0.4wt%, more preferably from 0.08wt% to 0.3wt%, most preferably 0.1wt%.

16. The cosmetic composition according to claims 1 to 15, wherein based on the total weight of the cosmetic composition, the solubilizer is present in an amount of from 0.01wt% to 0.9wt%, preferably 0.05 wt% to 0.8 wt%, more preferably 0.1 wt% to 0.5 wt%.

17. The cosmetic composition according to claims 1 to 16, wherein based on the total weight of the cosmetic composition, the emollient is present in an amount of preferably from 0-40wt%, more preferably 0-30wt%, most preferably 0-20wt%.

18. The cosmetic composition according to claims 1 to 17, wherein based on the total weight of the cosmetic composition, the co-emulsifier is present in an amount of from 0.01wt% to 10wt%, from 0.05wt% to 9wt%, from 0.1wt% to 8wt%, from 0.2wt% to 7wt%, from 0.4wt% to 6wt%, from 0.6wt% to 5wt%, from 0.8wt% to 4wt%, from 1.0wt% to 3wt%, from 1.2wt% to 2wt%, preferably from 1.0wt% to 3wt%, more preferably from 1.2wt% to 2wt%.

19. Use of the cosmetic composition according to any one of claims 1 to 18 for the preparation of personal care products, wherein the personal care products include skin care products, baby care products, body care products, hair care products, cleansing products, makeup removers, massage products, bath products, shaving products, cosmetics, tooth pastes, deodorants, anti-perspirants, insect repellants, shampoos, hair conditioners, sun care products, shower gels, hair styling gels, hair anti-dandruff products, hair growth promoter products, hair colorant products, hair bleaching agent products, hair anti-frizzing agent products, hair relaxer products, lubricating gel products, and spermicide gel products.

20. A method for improving sensory characteristics by applying the cosmetic composition according to any one of claims 1 to 18 onto at least one part of skin.

INTERNATIONAL SEARCH REPORT

International application No PCT/EP2020/084244

A. CLASSIFICATION OF SUBJECT MATTER					
INV.	A61Q5/00	A61Q17/04	A61Q11/00	A61Q17/02	A61Q19/00
	A61K8/04	A61K8/06	A61K8/81	A61K8/86	A61K8/39
	A61K8/37	A61K8/90			
According to International Patent Classification (IPC) or to both national classification and IPC					

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols) A61Q A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2015/118176 A1 (MENDOZA RICKY [US] ET AL) 30 April 2015 (2015-04-30)	1-4,7-20
Y	claims 1,4,14-18 paragraph [0006] page 11; table 5	1-20
X	DE 20 2014 010286 U1 (BEIERSDORF AG [DE]) 27 May 2015 (2015-05-27)	1,2,4,5, 8,10, 12-15, 17-20
Y	claims 1,9-18 paragraphs [0026] - [0027] paragraphs [0046] - [0049] Shampoo; page 10; examples 1-3 Duschgele; page 11; examples 1,3-5	1-20
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search 3 March 2021	Date of mailing of the international search report 12/03/2021
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Grillenberger, Sonja
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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2020/084244

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 103 01 834 A1 (BEIERSDORF AG [DE]) 29 July 2004 (2004-07-29) claims 1,3,4,9,10,12,13,16,18 paragraphs [0001], [0010] - [0012] paragraphs [0060] - [0062]; table 1 paragraphs [72;75] - [0081] pages 36-39; examples 2-4 -----	1-20
Y	DATABASE GNPD [Online] MINTEL; 24 July 2007 (2007-07-24), anonymous: "Extra Care Moisturizing Wash", XP055781266, Database accession no. 745054 abstract -----	1-20

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2020/084244

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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