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(54) Title: COMPOSITION

(57) Abstract: Disclosed are clear, aqueous perfume compositions which are free of ethanol. There is further provided a perfume composition which is clear, provides a good skin feeling, and good air drying properties on the skin.



COMPOSITION

Provided are clear, aqueous perfume compositions which are free of ethanol. There is further provided a perfume composition which is clear, provides a good skin feeling, and
5 good air drying properties on the skin.

In the fragrance industry there is a long standing need for ethanol-free perfume compositions due to the concerns about volatile organic compounds (VOCs), which are claimed to emit ground level ozone under certain extreme weather conditions. Perfume
10 compositions intended for the application to the skin are commonly solubilised with ethanol or ethanol/water mixtures with a high content of ethanol.

The task to produce ethanol free perfume compositions, which resemble an ethanol-based perfume composition in terms of skin feeling and clarity of the composition, with
15 good drying properties, is difficult.

Aqueous perfume compositions which are free of ethanol are known in the art. However, since most fragrances are substantially immiscible with water, in order to obtain clear formulations it is necessary to employ large amounts of surfactants as
20 solubilising agents or to apply high shear forces to reach oil droplet sizes in a small micro-meter range like it is, for example, realized in emulsions.

Even though a lot of work has been done in this area, the formulations produced are not completely satisfactory and there remains a need for improved composition addressing
25 the shortcomings in the prior art.

It has now been found that by using a unique combination of an odoriferous oil phase (i) and non-ionic surfactants (ii) in combination with particular co-solvents (iii) and 3-methyl-
-1,3-butanediol it is possible to obtain ethanol-free, clear perfumed compositions
30 possessing a good skin feeling, which are less tacky, and have a high drying speed.

There is provided in a first aspect an aqueous micro-emulsion comprising

- i) an odoriferous oil phase
- ii) at least one non-ionic surfactant

- iii) at least one co-solvent selected from isosorbide, solketal, and ethers thereof, or mixtures thereof; and
- iv) 3-methyl-1,3-butanediol.

5

The non-ionic surfactant, present in the micro-emulsion may be selected from broad range of commercially available products, and include C4 –C22 alkyl ethoxylates with about 1-25 ethylene oxide units, including the so-called narrow peaked alkyl ethoxylates, particularly ethoxylates and mixed ethoxylates/propoxylates, alkyl and dialkyl amine oxides, alkyl polyglycosides, alkanoyl glucose amides, and mixtures thereof. Specific examples of non-ionic surfactants are the condensation products of aliphatic alcohols with from about 1 to about 22 moles of ethylene oxide. The alkyl chain of the aliphatic alcohol can either be straight or branched, primary or secondary, and generally contains from about 8 to about 18 carbon atoms. Examples of commercially available non-ionic surfactants of this type include Tergitol™ marked by The Dow Chemical Corporation, such as Tergitol™15-S-9 (the condensation product of C11- C15 linear secondary alcohol with 9 moles ethylene oxide), and Tergitol™ 24-L-6 NMW (the condensation product of C12-C14 primary alcohol with 6 moles ethylene oxide with a narrow molecular weight distribution); Neodol® marked by Shell Chemical Company, e.g., Neodol® 45-9 (the condensation product of C14-C15 linear alcohol with 9 moles of ethylene oxide), Neodol® 23-6.5 (the condensation product of C12-C13 linear alcohol with 6.5 moles of ethylene oxide), Neodol® 45-7 (the condensation product of C14-C15 linear alcohol with 7 moles of ethylene oxide), and Neodol® 45-4 (the condensation product of C14-C15 linear alcohol with 4 moles of ethylene oxide); Kyro® EOB (the condensation product of C13-C15 alcohol with 9 moles ethylene oxide), marketed by The Procter & Gamble Company; Cosmacol® NII9 (the mixture of linear and mono branched C12-C13 with 9 moles of ethylene oxide), marketed by Sasol Olefins and Surfactants GmbH; Dehydol® series marketed by Cognis/BASF, preferably C8 to C18 (e.g. C10) with 2 to 14 moles of ethylene oxide, and mixtures thereof; Trideceth series, the condensation products of C13 alcohols and 2-21 moles of ethylene oxide, like Trideceth-9** and Trideceth-10.

Other commercially available non-ionic surfactants include Dobanol® 91-8 marketed by Shell Chemical Co., and Genapol® UD-080 marketed by Clariant. This category of non-ionic surfactant is referred to generally as "alkyl ethoxylates."

35

Other examples of non-ionic surfactants include the condensation products of ethylene oxide with a hydrophobic base formed by the condensation of propylene oxide with propylene glycol. Examples of compounds of this type include certain of the
5 commercially-available Pluronic® surfactants, marketed by BASF, Eumulgin® L** marketed by Cognis/BASF (e.g. PPG-1-PEG-9 Lauryl Glycol Ether).

Further examples of non-ionic surfactants are the polyethylene glycol sorbitol ethers containing 3-30 EO units (including, for example, sorbitol esters with oleic, myristic,
10 stearic, palmitic acid, and the like). They are also known under the trade name Tween, such as Tween 20**, Tween 40, and Tween 60.

Further examples of non-ionic surfactants are the condensation products of ethylene oxide (EO) with the product resulting from the reaction of propylene oxide and ethylene
15 diamine. Examples of this type of non-ionic surfactants include certain of the commercially available Tetronic® compounds, marketed by BASF.

Semi-polar non-ionic surfactants are a special category of non-ionic surfactants which include water-soluble amine oxides. These amine oxide surfactants in particular include
20 C10-C18 alkyl dimethyl amine oxides and C8-C12 alkoxy ethyl dihydroxy ethyl amine oxides.

Further examples of non-ionic surfactants are coconut alkylol amides (e.g. Cocamide MIPA, marketed by Evonik).

25

Other non-ionic surfactants are alkyl polyglycosides including, for example, C8-C10 polyglycosides (e.g. Radia® Easysurf 6881**, marketed by Oleon; Oramix™ CG110**, marketed by Seppic), C12-C16 alkyl polyglycosides (e.g. Plantaren® 1200 NP, marketed by Cognis/BASF), C8-C16 alkyl polyglycosides (e.g. Plantaren® 2000 N UP,
30 marketed by Cognis/BASF), C5 Amyl xyloside (Radia Easysurf 6505, marketed by Oleon) and mixture of C5 Amyl, C8 Capryl, C12 Lauryl xylosides (Radia Easysurf 6552, marketed by Oleon).

Further non-ionic surfactants include, for example, PEG 40 hydrogenated castor oil (Cremophor[®] RH 40** market by BASF), other types of the Cremophor[®] RH series, and PEG 400 (Lipoxol[®] ** marketed by Sasol Olefins and Surfactants GmbH).

- 5 The surfactants indicated with **, or mixtures thereof are especially preferred.

In a further embodiments, non-ionic surfactants are preferred, which possess almost no odour, i.e. they are essentially odourless. However, non-ionic surfactants which are not essentially odourless may contribute in a desired effect to the overall odour

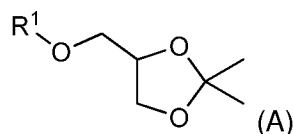
- 10 characteristics of a composition and thus also suitable.

In a further embodiment, there is provided an aqueous micro-emulsion wherein the non-ionic surfactant having a HLB (hydrophilic-lipophilic balance) of about 8 to 18.

- 15 As used herein, the term “surfactant” denotes for surface active agents, which possess a low volatility and, in contrary to ethanol, evaporate slowly from the emanating surface.

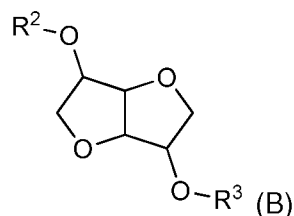
The co-solvent, present in the micro-emulsion is selected from isosorbide (hexahydrofuro[3,2-b]furan-3,6-diol; i.e. a compound of formula (B) wherein R² and R³ are hydrogen), solketal ((2,2-dimethyl-1,3-dioxolan-4-yl)methanol; i.e. a compound of formula (A) wherein R¹ is hydrogen), and ethers thereof. The ether chain(s) may comprising 1 to 5 (e.g. 2, 3, or 4) carbon atoms. Suitable ethers of solketal include 4-(methoxymethyl)-2,2-dimethyl-1,3-dioxolane (1 carbon atom), and 4-(ethoxymethyl)-2,2-dimethyl-1,3-dioxolane (2 carbon atoms). Suitable ethers of isosorbide include 3,6-dimethoxyhexahydrofuro[3,2-b]furan.

In one embodiment the co-solvent, present in the micro-emulsion is selected from a compound of formula (A)



- 30 wherein R¹ is selected from hydrogen, methyl, ethyl, linear and branched C₃ – C₅ alkyl, including C₄ alkyl, and C₂-C₅ hydroxy alkyl.

In another embodiment the co-solvent, present in the micro-emulsion is selected from a compound of formula (B)



- 5 wherein R² and R³ independently of each other are selected from hydrogen, methyl, ethyl, linear and branched C₃ – C₅ alkyl (including C₄ alkyl), and C₂-C₅ hydroxy alkyl.

Other co-solvents, such as dipropylene glycol methyl ether, 5-methoxy-2-methyl-2-pentanol, 3-methoxy-2-pentanol, and the like, may optionally be present.

10

The term “odoriferous oil”, present in the micro-emulsion, refers to one single olfactively active ingredient or a mixture of ingredients providing a pleasant smell and which are oil soluble. An olfactively active ingredient can be any natural oil or extract, or chemical compound used in a fragrance composition. Said ingredients are well known in the art and many are described in “Perfume and Flavour Chemicals”, S. Arctander, Allured
15 Publishing Corporation, 1994, IL, USA, which is incorporated herein by reference.

- Examples of odoriferous oils are extracts of flowers (e.g. lily, lavender, rose, jasmine, neroli or ylang-ylang), stems and leaves (e.g. geranium, patchouli or petitgrain), fruits
20 (e.g. anis, coriander, cumin or juniper), fruit skins (e.g. bergamot, citrus or orange), roots (e.g. macis, angelica, cardamom, iris or calmus) wood (e.g. pine, sandalwood, guaiac, cedar or rose), herbs and grasses (e.g. tarragon, lemon grass, salvia or thyme), needles and branches (e.g. pine or fir), resins and/or balms (e.g. galbanum, elemi, benzol, myrrh, olibanum or opoponax). Further, animal raw materials such as zibet
25 and/or castoreum can be used as odoriferous oils according to the invention. Typical synthetic olfactively active ingredients are for instance compounds belonging to the chemical class of alcohols (e.g. cinnamic alcohol, cis-3-hexenol, citronellol, Ebanol™ (3-methyl-5-(2,2,3-trimethyl-3-cyclopenten-1-yl)-4-penten-2-ol & isomers), eugenol, farnesol, geraniol, Javanol™ ([1-methyl-2-[(1,2,2-trimethylbicyclo[3.1.0]hex-3-yl)methyl]cyclopropyl]methanol), linalool, menthol, nerol, phenylethyl alcohol, rhodinol,
30 Sandalore™ (3-methyl-5-(2,2,3-trimethylcyclopent-3-en-1-yl)pentan-2-ol), Super

MuguetTM (6-ethyl-3-methyl-6(5)-octen-1-ol), terpineol or TimberolTM (1-(2,2,6-trimethylcyclohexyl)hexan-3-ol)), aldehydes and ketones (e.g. Azurone[®] (7-(3-methylbutyl)-1,5-benzodioxepin-3-one), anisaldehyde, α -amylcinnamaldehyde, GeorgywoodTM (1-(1,2,8,8-tetramethyl-1,2,3,4,5,6,7,8-octahydronaphthalen-2-yl)ethanone), hydroxycitronellal, Iso E[®] Super (1-(2,3,8,8-tetramethyl-1,2,3,4,5,6,7,8-octahydronaphthalen-2-yl)ethanone), Isoraldeine[®] (3-methyl-4-(2,6,6-trimethylcyclohex-2-en-1-yl)but-3-en-2-one), Hedione[®] (methyl 2-(3-oxo-2-pentylcyclopentyl)acetate), Lilial[®] (3-(4-(tert-butyl)phenyl)-2-methylpropanal), maltol, methyl cedryl ketone, methylionone, verbenone or vanillin), ethers and acetals (e.g. AmbroxTM (dodecahydro-3a,6,6,9a-tetramethylnaphtho[2,1-b]furan), geranyl methyl ether, rose oxide or SpirambreneTM (2',2',3,7,7-pentamethylspiro[bicycle[4.1.0]heptane-2,5'-[1,3]dioxane])), esters and lactones (e.g. benzyl acetate, cedryl acetate, γ -decalactone, Helvetolide[®] (2-(1-(3,3-dimethylcyclohexyl)ethoxy)-2-methylpropyl propionate), γ -undecalactone or vetivenyl acetate), macrocycles (e.g. Ambrettolide (oxacyclohepadec-10-en-2-one), ethylene brassylate or Exaltolide[®] (oxacyclohexadecan-2-one) and heterocycles such as isobutylquinoline.

Surprisingly it was found that an odoriferous oil phase comprising substantial amounts of higher branched alcohols can be used to form micro-emulsions according to the present invention, which are stable even at higher temperatures. By "substantial" is meant an amount of at least 18% by weight (e.g. about 20%, 22%, 25% or at least about 30% by weight) of higher branched alcohols based on the total amount of the odoriferous oil phase.

The term "higher branched alcohols" refers to alcohols comprising at least 8 carbon atoms (e.g. 10, 11, 12, 13, 14 or 15 carbon atoms), selected from:

- (i) Acyclic and cyclic alcohols comprising 1 – 5 (e.g. 2, 3, or 4) C₁- C₃ alkyl and/ or C₂-C₃ alkenyl substituent(s) (e.g. methyl, ethyl, isopropyl, propenyl), such as Dimetol (1,1,6-trimethyl-1-heptanol), 4-methyl-dec-3-en-5-ol, 4-isopropyl-cyclohexyl methanol, Radjanol (2-ethyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-buten-1-ol), Ebanol (3-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-4-penten-2-ol), Javanol (1-Methyl-2-[(1,2,2-trimethylbicyclo[3.1.0]hex-3-yl)methyl]-cyclopropane-methanol), SandaloreTM (3-methyl-5-(2,2,3-trimethylcyclopent-3-en-1-yl)pentan-2-ol),

- Super MuguetTM (6-ethyl-3-methyl-6(5)-octen-1-ol), TimberolTM (1-(2,2,6-trimethylcyclohexyl)hexan-3-ol)), terpene alcohols (e.g. citronellol, linalool, geraniol, myrcenol, terpineol (2-(4-methylcyclohex-4-en-1-yl)propan-2-ol), perilla alcohol (4-(prop-2-en-2-yl)-cyclohex-1-en-1-methanol), farnesol, and nerolidol), and alcohols derived from terpene alcohols (e.g. dihydromyrcenol, tetrahydromyrcenol, dihydrocitronellol, tetrahydrolinalool, ethyl linalool, dihydroterpineol (2-(4-methylcyclohexyl)propan-2-ol));
- (ii) aromatic substituted alkyl and alkenyl alcohols, for example, phenyl ethyl alcohol, MefrosolTM (5-phenyl-3-methyl-1-pentanol), dimethyl benzyl carbinol, MajantolTM 2,2-dimethyl-3-(2-methyl-phenyl)-propan-1-ol), and cinnamic alcohol (3-phenyl-prop-2-en-1-ol); and
- (iii) aromatic substituted oxy alkyl alcohols, for example, phenoxy ethyl alcohol.

15

The term "cyclic alcohols" includes alkyl cycloalkyl, alky cycloalkenyl, alkenyl cycloalkyl, and alkenyl cycloalkenyl alcohols, for example 4-isopropyl-cyclohexyl methanol, Radjanol (2-ethyl-4-(2,2,3-trimethyl-3-cyclopentenyl-1-yl)-2-buten-1-ol), Ebanol (3-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl-1-yl)-4-penten-2-ol), Javanol (1-Methyl-2-[(1,2,2-trimethylbicyclo[3.1.0]hex-3-yl)methyl]-cyclopropane-methanol), SandaloreTM (3-methyl-5-(2,2,3-trimethylcyclopent-3-en-1-yl)pentan-2-ol), TimberolTM (1-(2,2,6-trimethylcyclohexyl)hexan-3-ol)), terpineol (2-(4-methylcyclohex-4-en-1-yl)propan-2-ol), perilla alcohol (4-(prop-2-en-2-yl)-cyclohex-1-en-1-methanol), and dihydroterpineol (2-(4-methylcyclohexyl)propan-2-ol).

25

In one embodiment, the aqueous micro-emulsion comprises an odoriferous oil phase which contains more than 18% by weight of higher branched alcohols selected from 4-methyl-dec-3-en-5-ol, 4-isopropyl-cyclohexyl methanol, dimetol (1,1,6-trimethyl-1-heptanol), RadjanolTM (2-ethyl-4-(2,2,3-trimethyl-3-cyclopentenyl-1-yl)-2-buten-1-ol), EbanolTM (3-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl-1-yl)-4-penten-2-ol), JavanolTM (1-Methyl-2-[(1,2,2-trimethylbicyclo[3.1.0]hex-3-yl)methyl]-cyclopropane-methanol), SandaloreTM (3-methyl-5-(2,2,3-trimethylcyclopent-3-en-1-yl)pentan-2-ol), Super MuguetTM (6-ethyl-3-methyl-6(5)-octen-1-ol), TimberolTM (1-(2,2,6-trimethylcyclohexyl)-hexan-3-ol), citronellol, geraniol, linalool, ethyl linalool, tetrahydrolinalool, dihydromyrcenol, tetrahydromyrcenol, dihydrocitronellol, ethyl linalool, terpineol (2-(4-

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methyleyclohex-4-en-1-yl)propan-2-ol), dihydroterpineol (2-(4-methyleyclohexyl)propan-2-ol), perilla alcohol (4-(prop-2-en-2-yl)-cyclohex-1-en-1-methanol), phenyl ethyl alcohol, Mefrosol™ (5-phenyl-3-methyl-1-pentanol), Majantol™ 2,2-dimethyl-3-(2-methyl-phenyl)-propan-1-ol), and cinnamic alcohol ((3-phenyl-prop-2-en-1-ol), dimethyl
5 benzyl carbinol, phenoxy ethyl alcohol, and mixtures thereof.

In a further embodiment the odoriferous oil phase may be a complex mixture of many ingredients, some may behave as additional solubilizers. For example, isopropyl myristate, diphenyl ether, and triethyl citrate are known to act as solubilizers, which may
10 be present in the odoriferous oil phase.

The quantity of the odoriferous oil phase in the micro-emulsion is largely determined by the intended use of the micro-emulsion. Particularly preferred are micro-emulsions, comprising relatively high amounts of an odoriferous oil phase, preferably up to 15
15 weight percent based on the micro-emulsion. The micro-emulsions as defined above are mainly intended for direct use, e.g. perfuming the skin, fabric, hair, or air (as air fresheners, deodorants). However, they may also be incorporated into consumer products, such as cosmetic products (e.g. body deodorants), and hard surface cleaners, thus obtaining a fragranced product.

20 In one embodiment, the aqueous micro-emulsion comprises at least 65 % by weight water (e.g. at least 66%, 67%, 68%, or 69% by weight).

For the purpose of this invention by "micro-emulsion" is meant a thermodynamically
25 stable liquid mixture of oil, water and surfactant in combination with a co-solvent.

The micro-emulsion may further contain other ingredients such as antioxidants, chelating agents, UV-filters, cooling agents, preservatives, thickening agents, cosmetic active ingredients, moisturizers, humectants, emollients, pigments, colorants, dyes,
30 antifoams, pH adjusting or buffering agents, or other ingredients known to those skilled in the art.

The micro-emulsion as hereinabove described may be prepared according to methods known in the art.

Particular embodiments of the present invention are now further described with reference to the following non-limiting examples.

The examples are for the purpose of illustration only and it is to be understood that variations and modifications can be made by one skilled in the art without departing from the scope of the attached claims. It should be understood that the embodiments described may be used individually, or may be combined.

Example 1:

Several composition were prepared with the ingredients (amounts given in % by weight) listed in Table 1, as follows. The odoriferous oil phase contains 32% of higher branched alcohols (i.e. 32% by weight of a mixture of citronellol, dihydro myrcenol, ethyl linalool and linalool).

In a beaker equipped with a stirrer and at room temperature, all ingredients marked with (A) in Table 1 were mixed until they dissolved. To the resulting aqueous phase the odoriferous oil phase (marked with (B) in Table 1) was added with constant low stirring speed. Clear solutions were thus obtained at room temperature.

Table 1:

Example Ingredient	1-A comparison	1-B comparison	1-E	1-F
Odoriferous oil phase (B)	7	7	7	7
Non-ionic surfactant (A)				
Barsolve Plus ¹	10	8	8	8
Cocamide MIPA ²	-	0.15	0.15	-
DC 1510 ³ (A)	-	0.05	0.05	-
1,2 hexanediol (A)	9	-	2	-
3-methyl-1,3-butanediol (A)	-	-	7	7
Co-solvent (A)				
3-methoxy-3-methyl-butanol	-	13	-	-
Isosorbide dimethylether	-	-	6	6
Water (A)	74	71.8	69.8	72

¹ Surfactant mixture (comprising 40-60% Trideceth-9, 20-40% PEG 40 Hydrogenated castor oil, and up to 5% Polysorbate-20) marketed by Barnet

² Coconut monoisopropanolamide marketed by Evonik.

³ Silicone emulsion marketed by Dow Corning (Antifoam)

Example 2:

The compositions of Example 1 were submitted to stability testing in refrigerator (4 °C) and thermostated cupboard (at 40 °C, 45 °C and 50 °C respectively) for 3 days. The results are shown in Table 2.

5

Table 2:

Example Ingredient	1-A comparison	1-B comparison	1-E	1-F
Refrigerator (4 °C)	C	C	C	H
Room temperature (ca. 25 °C)	C	C	C	C
Thermostated cupboard (40 °C)	D	H	H	C
Thermostated cupboard (45 °C)		T	H	H
Thermostated cupboard (50 °C)		D	T	T

C: clear/transparent

H: hazy/bluish

T: turbid

10 D: phase-separated

As can be seen from the test results above, the presence of a co-solvent and 3-methyl-1,3-butanediol increased the thermal stability of compositions comprising an odoriferous oil phase comprising high levels of higher alcohols.

15

Example 3:

The compositions were evaluated by 6 panellists in blind by comparison of two compositions. The compositions were sprayed onto each of the forearms of the panellist and evaluated. Each panellist was asked to the sensory properties as indicated in Table 3 below and the drying time.

20

25

30

Table 3:

Evaluation	Skin feeling	Drying speed	Tackiness	Wetness	Greasiness
Example					
1-A (comparison)	-	+	-	-	+
1-E	+++	++	++	++	++

+++: very good

++: good

+: acceptable

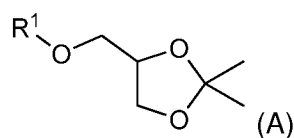
-: not acceptable

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As can be seen from the test results above, the formulation containing a co-solvent and 3-methyl-1,3-butanediol showed better performance.

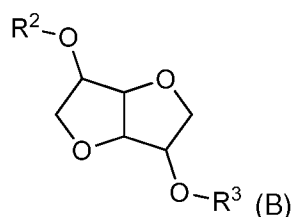
Claims

1. An aqueous micro-emulsion comprising
 - i) an odoriferous oil phase
 - ii) at least one non-ionic surfactant
 - iii) at least one co-solvent selected from isosorbide, solketal, and ethers thereof, or mixtures thereof; and
 - iv) 3-methyl-1,3-butanediol.
2. An aqueous micro-emulsion according to claim 1 wherein the non-ionic surfactant has a HLB of 8 to 18.
3. An aqueous micro-emulsion according to claim 1 or claim 2, wherein the co-solvent is a compound of formula (A)



wherein R¹ is hydrogen, methyl, ethyl, C₃ – C₅ alkyl, or C₂ – C₅ hydroxy alkyl.

4. An aqueous micro-emulsion according to claim 1 or claim 2, wherein the co-solvent is a compound of formula (B)



wherein R¹ and R² are independently of each other selected from hydrogen, methyl, ethyl, C₃ – C₅ alkyl, and C₂-C₅ hydroxy alkyl.

5. An aqueous micro-emulsion according to any one of the claims 1 through 4 wherein the odoriferous oil phase contains at least 18% by weight of higher branched alcohol(s), said alcohol comprising at least 8 carbon atoms.

6. An aqueous micro-emulsion according to any one of the claims 1 through 5 wherein micro-emulsion comprises at least 65 % by weight water.
7. A consumer product comprising an aqueous micro-emulsion as defined in one of the proceeding claims.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2014/060650

A. CLASSIFICATION OF SUBJECT MATTER		
INV.	A61K8/34 A61K8/92	A61K8/39 A61K8/06
	A61K8/49	A61K8/60
		A61Q13/00
ADD.		
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) A61K A61Q		
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, WPI Data, EMBASE, BIOSIS		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2005/123028 A1 (DOW GLOBAL TECHNOLOGIES INC [US]; PIECHOCKI CHRISTIAN [FR]; SHICK REED) 29 December 2005 (2005-12-29) page 10, lines 19-21; claims 1-12; examples 1-5, 7-14	1-7
Y	DE 195 37 509 A1 (EGSTO PHARM PHARMAZEUTISCHE PR [DE]) 10 April 1997 (1997-04-10) column 2, line 37 - column 3, line 15; claims 1,6	1-7
Y	WO 02/00184 A1 (B F INTERNAT SARL LAB [FR]; DUMANOIS MARTINE [FR]; GUEYNE NATHALIE [FR]) 3 January 2002 (2002-01-03) paragraphs [0008] - [0023]; claim 1	1-7
☐ 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 8 October 2014		Date of mailing of the international search report 20/10/2014
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 Szarek, Sophie

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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