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(54) Title: COSMETIC COMPOSITION FOR DIRECT DYEING COMPRISING AN AQUEOUS PHASE AND A FATTY PHASE THAT ARE VISUALLY DISTINCT FROM EACH OTHER

(57) Abstract: Cosmetic composition for direct dyeing comprising an aqueous phase and a fatty phase that are visually distinct from each other. The present invention relates to a cosmetic composition for the direct dyeing of keratin fibres, comprising: -an aqueous phase (A) comprising at least 0.1% by weight, relative to the total weight of the composition, of one or more direct dyes, one or more aqueous-phase thickeners, one or more organic solvents and water, -at least 10% by weight, relative to the total weight of the composition, of a fatty phase (B) comprising one or more oils and one or more fatty-phase thickeners. The invention also relates to a process for preparing this composition. Finally, the invention relates to a process for the direct dyeing of keratin fibres, comprising a step of applying the above composition to the keratin fibres.



Cosmetic composition for direct dyeing comprising an aqueous phase and a fatty phase that are visually distinct from each other

5 The present invention relates to a cosmetic composition for the direct dyeing of keratin fibres, comprising an aqueous phase comprising a thickener, a direct dye, an organic solvent and water, and a fatty phase comprising a thickener and an oil, the two phases being visually distinct from each other.

 The invention also relates to a process for preparing this composition.

10 Finally, the invention relates to a process for the direct dyeing of keratin fibres, comprising a step of applying the above composition to the keratin fibres.

 Many people have for a long time sought to modify the colour of their hair, and especially to dye it, for example in order to mask their grey hair.

 Two main methods exist for dyeing human keratin fibres.

15 The first type of dyeing is "permanent" or oxidation dyeing, which uses dye compositions containing oxidation dye precursors, generally referred to as oxidation bases. These oxidation bases are colourless or weakly coloured compounds, which, when combined with oxidizing products, may give rise to coloured compounds via a process of oxidative condensation.

20 It is also known that the shades obtained with these oxidation bases may be varied by combining them with couplers or colour modifiers. The variety of molecules used in the oxidation bases and couplers allows a wide range of colours to be obtained.

 The second type of dyeing is "semi-permanent" dyeing or direct dyeing, which consists in applying, to the keratin fibres, direct dyes, which are coloured and
25 colouring molecules that have affinity for said fibres, in leaving them on for a time, and then in rinsing them off.

 In order to perform these dyeing operations, the direct dyes generally used are chosen from nitrobenzene, anthraquinone, nitropyridine, azo, xanthene, acridine, azine and triarylmethane direct dyes, and natural dyes.

30 These dyes may be nonionic, anionic, cationic or amphoteric.

 Direct dyeing compositions and especially those comprising anionic direct dyes (also known as acid direct dyes) are often products intended for professionals since they must be used according to a quite specific protocol, in order to minimize the staining of the scalp.

Specifically, these products have excellent performance qualities in terms of persistence of the colouring on the fibre, but often have the drawback of also pigmenting the scalp.

5 Furthermore, these dyeing products must have good general performance qualities, especially as regards:

- their working qualities, especially in terms of texture, ease of application and ease of spreading on the hair tips;
- their dyeing qualities, especially in terms of build-up, intensity, chromaticity, fastness and/or selectivity of the colouring obtained;
- 10 - their hair-conditioning and haircare qualities especially in terms of softness, suppleness and ease of disentangling of dyed hair.

Consequently, there is a need to develop novel direct dyeing compositions which do not have the above drawbacks.

15 In particular, there is a need to develop novel direct dyeing compositions which have excellent dying performance qualities, in terms of fastness of the colouring, while at the same time not staining the scalp, or minimizing the staining of the scalp.

It has now been discovered, surprisingly, that a particular direct dyeing composition comprising an aqueous phase and an oily phase that are visually distinct from each other can satisfy the drawbacks encountered in the compositions of the prior art, and meet the above objectives.

20 This composition comprises an aqueous phase comprising at least one direct dye, at least one aqueous-phase thickener and at least one organic solvent, and a fatty phase comprising at least one fatty-phase thickener and at least one oil, the two phases being visually distinct from each other.

25 One subject of the invention is thus a cosmetic composition for the direct dyeing of keratin fibres, comprising:

- a) an aqueous phase (A) comprising:
 - at least 0.1% by weight, relative to the total weight of the composition, of one or more direct dyes,
 - 30 - one or more aqueous-phase thickeners,
 - one or more organic solvents, and
 - water,
- b) at least 10% by weight, relative to the total weight of the composition, of a fatty phase (B) comprising:

- one or more oils, and
- one or more fatty-phase thickeners,

it being understood that:

- the two phases (A) and (B) are visually distinct from each other; and
- 5 - the oil(s) represent(s) a total content ranging from 8% to 50% by weight relative to the total weight of the composition.

The composition according to the invention has the advantage of having excellent dyeing performance qualities while at the same time not staining the scalp.

10 Specifically, when this composition is applied to the head of hair, the fatty phase forms a protective layer at the surface of the scalp which isolates it from the aqueous phase which comprises the direct dye(s).

Furthermore, the composition according to the invention has good working qualities, especially in terms of texture, ease of application and ease of spreading on the hair tips.

15 The composition according to the invention also has an appealing aesthetic appearance with the presence of the two visually distinct phases. The composition according to the invention has a quite particular texture with a novel visual aspect, for instance a visual aspect of "marbled" type.

20 The composition according to the invention also has excellent dyeing qualities, especially in terms of build-up, intensity, chromaticity, fastness and/or selectivity of the colouring obtained.

Finally, the composition according to the invention has very good hair-conditioning and haircare qualities especially in terms of softness, suppleness and ease of disentangling of dyed hair.

25 A subject of the invention is also a process for preparing the composition according to the invention, which comprises:

- a) a step of preparing, separately from each other, the phases (A) and (B) by mixing the constituents of each phase, and then
- 30 b) a step of placing phases (A) and (B) in contact without intimate mixing thereof.

According to a preferred embodiment, the preparation process according to the invention uses one or more static mixers.

Finally, a subject of the invention is a process for the direct dyeing of keratin fibres, comprising a step of applying the composition according to the invention to the keratin fibres.

5 Other subjects, characteristics, aspects and advantages of the invention will emerge even more clearly on reading the description and the examples that follow.

In the text hereinbelow, and unless otherwise indicated, the limits of a range of values are included within that range, especially in the expressions "between" and "ranging from ... to ...".

10 Moreover, the expressions "at least one" and "at least" used in the present description are equivalent to the expressions "one or more" and "greater than or equal to", respectively.

According to the present patent application, the term "keratin fibres" mainly denotes human keratin fibres and in particular the hair.

15 The composition according to the present invention has two phases that are visually distinct from each other or more than two visually distinct phases, and preferably two visually distinct phases.

20 The term "visually distinct from each other" means that the two phases (A) and (B) may be distinguished from each other by the naked human eye, unlike intimately mixed phases. Thus, one of the two phases is not finely dispersed in the other, as is the case for emulsions.

Preferably, at least one of the two phases occupies zones forming volutes or mottles, preferably of more than 1 cm in length. Preferably, one of the two phases is not in the form of globules. More preferably, neither of the two phases is in the form of globules.

25 In contrast with the above definition, the term "intimate mixing" means that one of the two phases is finely dispersed in the other, as is the case for oil-in-water or water-in-oil emulsions or for complex emulsions. It is therefore not possible to distinguish the phases from each other by the naked eye.

30 Preferably, the two phases (A) and (B) are visually distinct in a stable manner, namely the zones occupied by the two phases do not move in response to simple inverting of the container which contains them, when no other stress is applied to the composition. The two phases especially do not constitute two-phase liquids, in which two distinct phases occupy zones one above the other which mix together when the container is inverted.

As mentioned previously, the composition according to the invention comprises an aqueous phase (A) which comprises at least 0.1% by weight, relative to the total weight of the composition, of one or more direct dyes.

5 The term "direct dye" means natural and/or synthetic dyes, other than oxidation dyes. They are dyes that will superficially diffuse on the fibre and dye the fibres by themselves.

The direct dye(s) that may be used according to the invention are preferentially chosen from natural or synthetic, cationic, anionic or nonionic direct dyes.

10 The term "natural dyes" or "dyes of natural origin" means dyes derived from natural materials (plant, mineral or animal origin), for instance extracts, ground material and decoctions, which have a greater or smaller concentration of dyes.

Included among the natural dyes according to the invention are compounds that may be present in nature and that are reproduced by chemical (semi)synthesis.

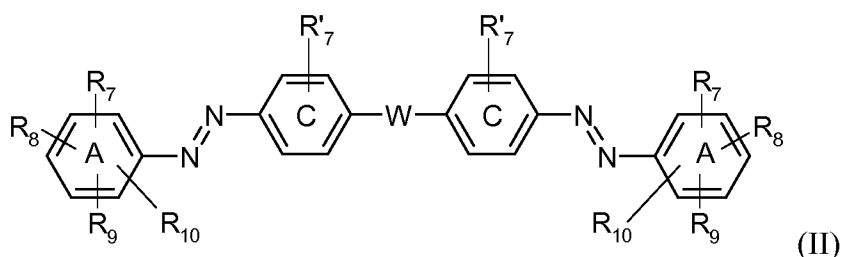
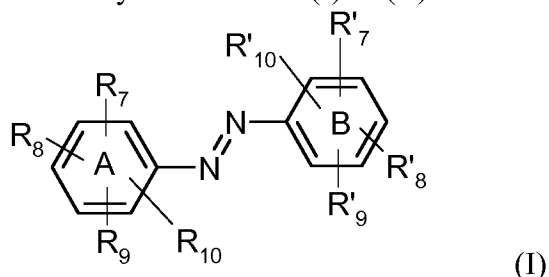
15 The natural dyes may be chosen especially from spinulosin, orceins, polyphenols or ortho-diphenols (also referred to as ODPs in the rest of the description) and all extracts rich in ODPs, curcumin, indole derivatives such as isatin or indole-2,3-dione, indigoids including indigo, phthalocyanines and porphyrins in particular complexed to a metal, glycosyl or non-glycosyl iridoids, chromene dyes, anthraquinone and naphthoquinone dyes such as lawsone or henna, juglone, spinulosin, chromene or chroman dyes, such as neoflavanols and neoflavanones, flavanols; and
20 anthocyanidols. Use may also be made of extracts or decoctions containing these natural dyes and especially plant extracts or poultices containing said dyes.

According to a preferred embodiment of the invention, the direct dye(s) that
25 may be used according to the invention are chosen from anionic dyes, commonly referred to as "acid" direct dyes on account of their affinity for alkaline substances. The anionic direct dyes according to the invention may be natural or synthetic.

The term "anionic direct dye" means any direct dye comprising in its structure at least one CO₂R or SO₃R substituent with R denoting a hydrogen atom or a cation
30 originating from a metal or an amine, or an ammonium ion. The anionic dyes may be chosen from direct nitro acid dyes, azo acid dyes, azine acid dyes, triarylmethane acid dyes, indoamine acid dyes, anthraquinone acid dyes, indigoid dyes and natural acid dyes.

As anionic (or acid) direct dyes that may be used according to the invention, mention may be made especially of the dyes of formulae (I), (II), (III), (IV), (V), (VI), (VII), (VIII), (IX), (X), (XI) and (XII) below:

a) the diaryl anionic azo dyes of formula (I) or (II):



in which formulae (I) and (II):

- R_7 , R_8 , R_9 , R_{10} , R'_7 , R'_8 , R'_9 and R'_{10} , which may be identical or different, represent a hydrogen atom or a group chosen from:

- alkyl;
- alkoxy, alkylthio;
- hydroxyl, mercapto;
- nitro, nitroso;

- $R^\circ-C(X)-X'$ -, $R^\circ-X'-C(X)$ -, $R^\circ-X'-C(X)-X''$ - with R° representing a hydrogen atom or an alkyl or aryl group; X , X' and X'' , which may be identical or different, representing an oxygen or sulfur atom, or NR with R representing a hydrogen atom or an alkyl group;

- $(O)_2S(O^-)$ -, M^+ with M^+ representing a hydrogen atom or a cationic counterion;

- $(O)CO^-$ -, M^+ with M^+ as defined previously;

- $R''-S(O)_2^-$ -, with R'' representing a hydrogen atom or an alkyl, aryl, (di)(alkyl)amino or aryl(alkyl)amino group; preferentially a phenylamino or phenyl group;

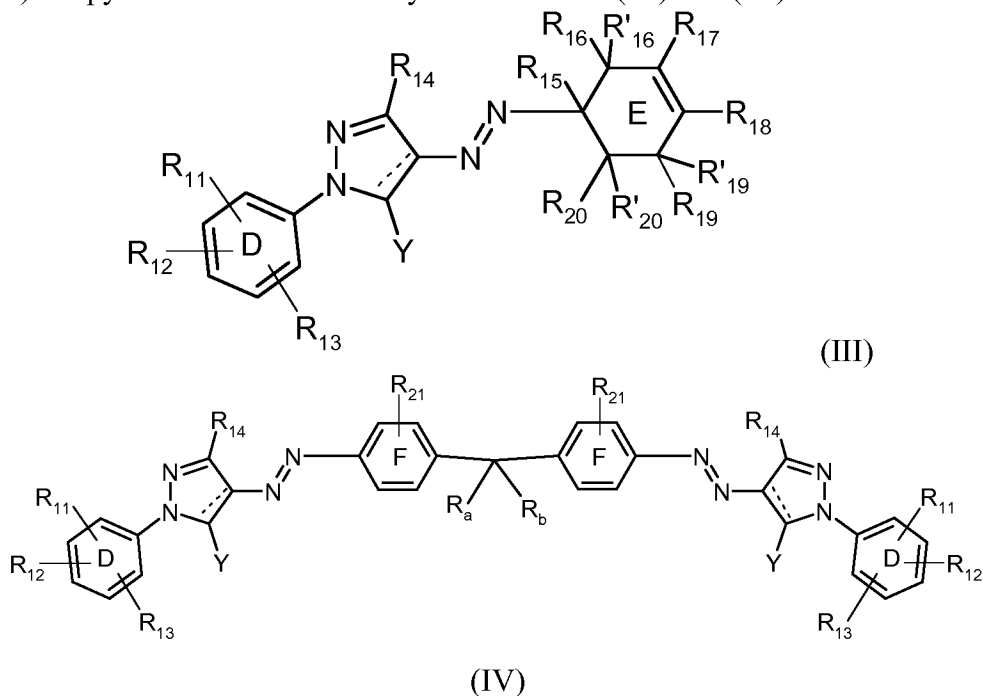
- R'''-S(O)₂-X' - with R''' representing an alkyl or optionally substituted aryl group, X' as defined previously;
 - (di)(alkyl)amino;
 - aryl(alkyl)amino optionally substituted with one or more groups chosen from i) nitro; ii) nitroso; iii) (O)₂S(O⁻)-, M⁺ and iv) alkoxy, with M⁺ as defined previously;
 - optionally substituted heteroaryl; preferentially a benzothiazolyl group;
 - cycloalkyl; in particular cyclohexyl;
 - Ar-N=N- with Ar representing an optionally substituted aryl group; preferentially a phenyl optionally substituted with one or more alkyl, (O)₂S(O⁻)-, M⁺ or phenylamino groups;
 - or alternatively two contiguous groups R₇ with R₈ or R₈ with R₉ or R₉ with R₁₀ together form a fused benzo group A'; and R'₇ with R'₈ or R'₈ with R'₉ or R'₉ with R'₁₀ together form a fused benzo group B'; with A' and B' optionally substituted with one or more groups chosen from i) nitro; ii) nitroso; iii) (O)₂S(O⁻)-, M⁺; iv) hydroxyl; v) mercapto; vi) (di)(alkyl)amino; vii) R^o-C(X)-X'-; viii) R^o-X'-C(X)-; ix) R^o-X'-C(X)-X''-; x) Ar-N=N- and xi) optionally substituted aryl(alkyl)amino; with M⁺, R^o, X, X', X'' and Ar as previously defined;
 - W represents a sigma bond σ, an oxygen or sulfur atom, or a divalent radical
 - i) -NR- with R as defined previously, or ii) methylene -C(R_a)(R_b)- with R_a and R_b, which may be identical or different, representing a hydrogen atom or an aryl group, or alternatively R_a and R_b form, with the carbon atom that bears them, a spiro cycloalkyl; preferentially, W represents a sulfur atom or R_a and R_b together form a cyclohexyl;
- it being understood that formulae (I) and (II) comprise at least one sulfonate radical (O)₂S(O⁻)-, M⁺ or one carboxylate radical (O)CO⁻, M⁺ on one of the rings A, A', B, B' or C; preferentially sodium sulfonate.
- As examples of dyes of formula (I), mention may be made especially of: Acid Red 1, Acid Red 4, Acid Red 13, Acid Red 14, Acid Red 18, Acid Red 27, Acid Red 28, Acid Red 32, Acid Red 33, Acid Red 35, Acid Red 37, Acid Red 40, Acid Red 41, Acid Red 42, Acid Red 44, Pigment red 57, Acid Red 68, Acid Red 73, Acid Red 135, Acid Red 138, Acid Red 184, Food Red 1, Food Red 13, Acid Orange 6, Acid Orange 7, Acid Orange 10, Acid Orange 19, Acid Orange 20, Acid Orange 24, Yellow 6, Acid Yellow 9, Acid Yellow 36, Acid Yellow 199, Food Yellow 3, Acid Violet 3, Acid Violet 7, Acid Violet 14, Acid Blue 113, Acid Blue 117, Acid Black 1, Acid Brown 4,

Acid Brown 20, Acid Black 26, Acid Black 52, Food Black 1, Food Black 2 and Food yellow 3 or sunset yellow.

As examples of dyes of formula (II), mention may be made especially of: Acid Red 111, Acid Red 134 and Acid yellow 38;

5

b) the pyrazolone anionic azo dyes of formulae (III) and (IV):



10

in which formulae (III) and (IV):

- R₁₁, R₁₂ and R₁₃, which may be identical or different, represent a hydrogen or halogen atom, an alkyl group or -(O)₂S(O⁻)-, M⁺ with M⁺ as defined previously;

- R₁₄ represents a hydrogen atom, an alkyl group or a group -C(O)O⁻, M⁺ with M⁺ as defined previously;

15

- R₁₅ represents a hydrogen atom;

- R₁₆ represents an oxo group, in which case R'₁₆ is absent, or alternatively R₁₅ with R₁₆ together form a double bond;

- R₁₇ and R₁₈, which may be identical or different, represent a hydrogen atom, or a group chosen from:

20

- (O)₂S(O⁻)-, M⁺ with M⁺ as defined previously;

- Ar-O-S(O)₂- with Ar representing an optionally substituted aryl group, preferentially a phenyl optionally substituted with one or more alkyl groups;

- R₁₉ and R₂₀ together form either a double bond, or a benzo group D', which is optionally substituted;

- R'₁₆, R'₁₉ and R'₂₀, which may be identical or different, represent a hydrogen atom or an alkyl or hydroxyl group;

5 - R₂₁ represents a hydrogen atom or an alkyl or alkoxy group;

- R_a and R_b, which may be identical or different, are as defined previously, preferentially R_a represents a hydrogen atom and R_b represents an aryl group;

- Y represents either a hydroxyl group or an oxo group;

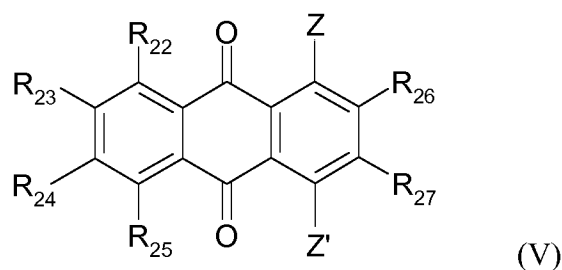
10 - ----- represents a single bond when Y is an oxo group; and represents a double bond when Y represents a hydroxyl group;

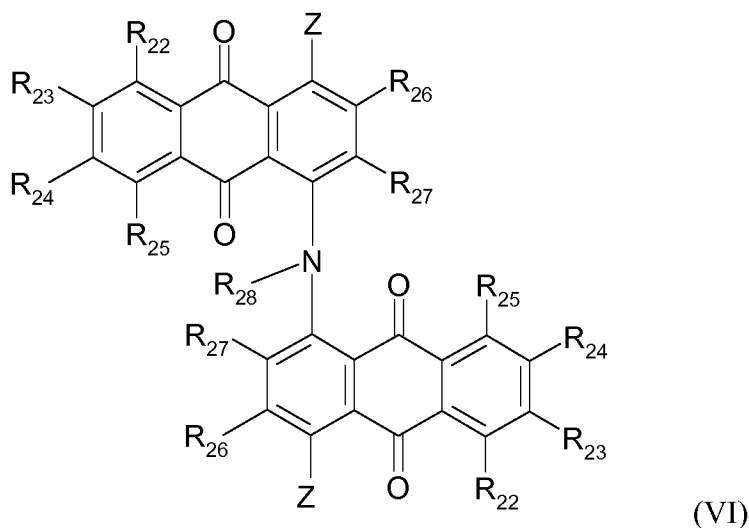
it being understood that formulae (III) and (IV) comprise at least one sulfonate radical (O)₂S(O⁻)-, M⁺ or one carboxylate radical C(O)O⁻, M⁺ on one of the rings D or E; preferentially sodium sulfonate.

15 As examples of dyes of formula (III), mention may be made especially of: Acid Red 195, Acid Yellow 23, Acid Yellow 27 and Acid Yellow 76.

As an example of a dye of formula (IV), mention may be made especially of: Acid Yellow 17.

c) the anthraquinone dyes of formulae (V) and (VI):





in which formulae (V) and (VI):

- R₂₂, R₂₃, R₂₄, R₂₅, R₂₆ and R₂₇, which may be identical or different, represent
- 5 a hydrogen or halogen atom, or a group chosen from:
- alkyl;
 - hydroxyl, mercapto;
 - alkoxy, alkylthio;
 - optionally substituted aryloxy or arylthio, preferentially substituted with
- 10 one or more groups chosen from alkyl and (O)₂S(O⁻)-, M⁺ with M⁺ as defined previously;
- aryl(alkyl)amino optionally substituted with one or more groups chosen from alkyl and (O)₂S(O⁻)-, M⁺ with M⁺ as defined previously;
 - (di)(alkyl)amino;
 - 15 - (di)(hydroxyalkyl)amino;
 - (O)₂S(O⁻)-, M⁺ with M⁺ as defined previously;
- Z' represents a hydrogen atom or a group NR₂₈R₂₉ with R₂₈ and R₂₉, which may be identical or different, representing a hydrogen atom or a group chosen from:
- alkyl;
 - 20 - polyhydroxyalkyl such as hydroxyethyl;
 - aryl optionally substituted with one or more groups, more particularly
- i) alkyl such as methyl, *n*-dodecyl, *n*-butyl; ii) (O)₂S(O⁻)-, M⁺ with M⁺ as defined previously; iii) R^o-C(X)-X'-, R^o-X'-C(X)-, R^o-X'-C(X)-X''- with R^o, X, X' and X'' as defined previously, preferentially R^o represents an alkyl group;

- cycloalkyl; in particular cyclohexyl;

- Z, represents a group chosen from hydroxyl and $\text{NR}'_{28}\text{R}'_{29}$ with R'_{28} and R'_{29} , which may be identical or different, representing the same atoms or groups as R_{28} and R_{29} as defined previously;

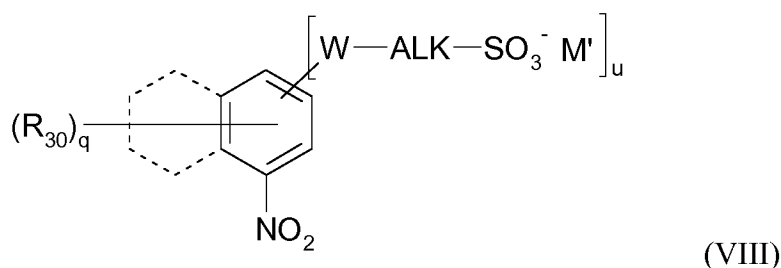
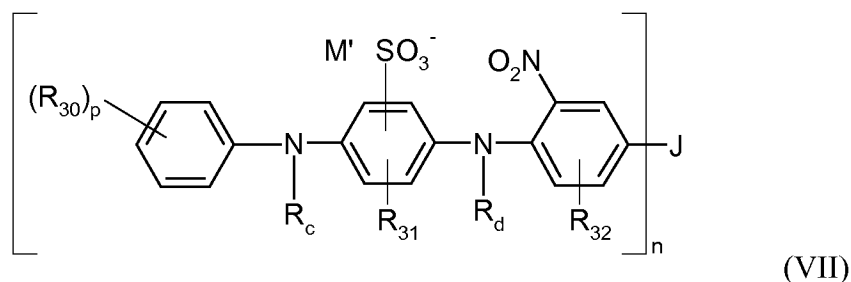
5 it being understood that formulae (V) and (VI) comprise at least one sulfonate radical $(\text{O})_2\text{S}(\text{O})^-$, M^+ or one carboxylate radical $\text{C}(\text{O})\text{O}^-$, M^+ ; preferentially sodium sulfonate.

As examples of dyes of formula (V), mention may be made especially of:
 10 Acid Blue 25, Acid Blue 43, Acid Blue 62, Acid Blue 78, Acid Blue 129, Acid Blue 138, Acid Blue 140, Acid Blue 251, Acid Green 25, Acid Green 41, Acid Violet 42, Acid Violet 43, Mordant Red 3 and EXT violet N° 2.

As an example of a dye of formula (VI), mention may be made especially of:
 Acid Black 48.

d) the nitro dyes of formulae (VII) and (VIII):

15



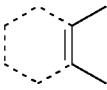
in which formulae (VII) and (VIII):

20 - R_{30} , R_{31} and R_{32} , which may be identical or different, represent a hydrogen or halogen atom, or a group chosen from:

- alkyl;

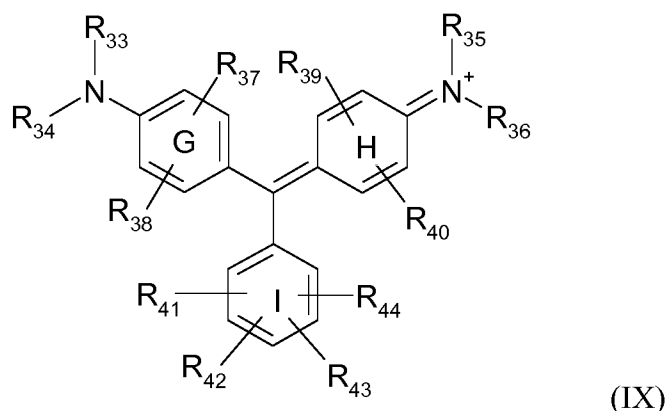
- alkoxy optionally substituted with one or more hydroxyl groups, alkylthio optionally substituted with one or more hydroxyl groups;

- hydroxyl, mercapto;

- nitro, nitroso;
- polyhaloalkyl;
- $R^{\circ}-C(X)-X'-$, $R^{\circ}-X'-C(X)-$, $R^{\circ}-X'-C(X)-X''-$ with R° ; X , X' and X'' as defined previously;
- 5 - $(O)_2S(O^-)-$, M^+ with M^+ as defined previously;
- $(O)CO^-$, M^+ with M^+ as defined previously;
- (di)(alkyl)amino;
- (di)(hydroxyalkyl)amino;
- heterocycloalkyl such as piperidino, piperazino or morpholino;
- 10 more particularly, R_{30} , R_{31} and R_{32} represent a hydrogen atom;
- R_c and R_d , which may be identical or different, represent a hydrogen atom or an alkyl group;
- W is as defined previously; W more particularly represents an $-NH-$ group;
- ALK represents a linear or branched divalent C_1-C_6 alkylene group; more
- 15 particularly, ALK represents a $-CH_2-CH_2-$ group;
- n is 1 or 2;
- p represents an integer inclusively between 1 and 5;
- q represents an integer inclusively between 1 and 4;
- u is 0 or 1;
- 20 - when n is 1, J represents a nitro or nitroso group; more particularly nitro;
- when n is 2, J represents an oxygen or sulfur atom, or a divalent radical $-S(O)_m-$ with m representing an integer 1 or 2; more preferentially, J represents a radical $-SO_2-$;
- M' represents a hydrogen atom or a cationic counterion;
- 25 - , which may be present or absent, represents a benzo group optionally substituted with one or more R_{30} groups as defined previously;
- it being understood that formulae (VII) and (VIII) comprise at least one sulfonate radical $(O)_2S(O^-)-$, M^+ or one carboxylate radical $C(O)O^-$, M^+ ; more
- 30 preferentially sodium sulfonate.
- As examples of dyes of formula (VII), mention may be made especially of: Acid Brown 13 and Acid Orange 3.

As examples of dyes of formula (VIII), mention may be made of: Acid Yellow 1, the sodium salt of 2,4-dinitro-1-naphthol-7-sulfonic acid, 2-piperidino-5-nitrobenzenesulfonic acid, 2-(4'-N,N(2"-hydroxyethyl)amino-2'-nitro)anilineethanesulfonic acid, 4- β -hydroxyethylamino-3-nitrobenzenesulfonic acid and EXT D&C yellow 7.

d) the triarylmethane dyes of formula (IX):



in which formula (IX):

- R_{33} , R_{34} , R_{35} and R_{36} , which may be identical or different, represent a hydrogen atom or a group chosen from alkyl, optionally substituted aryl and optionally substituted arylalkyl; more particularly an alkyl and benzyl group optionally substituted with a group $(O)_mS(O^-)$, M^+ with M^+ and m as defined previously;

- R_{37} , R_{38} , R_{39} , R_{40} , R_{41} , R_{42} , R_{43} and R_{44} , which may be identical or different, represent a hydrogen atom or a group chosen from:

- alkyl;
- alkoxy, alkylthio;
- (di)(alkyl)amino;
- hydroxyl, mercapto;

- nitro, nitroso;

- $R^o-C(X)-X'$ -, $R^o-X'-C(X)$ -, $R^o-X'-C(X)-X''$ - with R^o representing a hydrogen atom or an alkyl or aryl group; X , X' and X'' , which may be identical or different, representing an oxygen or sulfur atom, or NR with R representing a hydrogen atom or an alkyl group;

- $(O)_2S(O^-)$ -, M^+ with M^+ representing a hydrogen atom or a cationic counterion;

- $(O)CO^-$ -, M^+ with M^+ as defined previously;

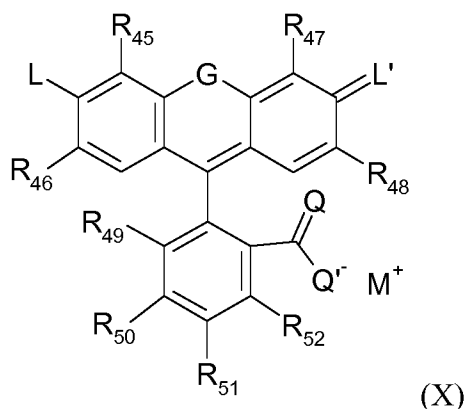
- or alternatively two contiguous groups R_{41} with R_{42} or R_{42} with R_{43} or R_{43} with R_{44} together form a fused benzo group: I'; with I' optionally substituted with one or more groups chosen from i) nitro; ii) nitroso; iii) $(O)_2S(O^-)$ -, M^+ ; iv) hydroxyl; v) mercapto; vi) (di)(alkyl)amino; vii) $R^\circ-C(X)-X'$ -; viii) $R^\circ-X'-C(X)-$; ix) $R^\circ-X'-C(X)-X''$ -; with M^+ , R° , X, X' and X'' as defined previously;

more particularly, R_{37} to R_{40} represent a hydrogen atom, and R_{41} to R_{44} , which may be identical or different, represent a hydroxyl group or $(O)_2S(O^-)$ -, M^+ ; and when R_{43} with R_{44} together form a benzo group, it is preferentially substituted with an $(O)_2S(O^-)$ - group;

it being understood that at least one of the rings G, H, I or I' comprises at least one sulfonate radical $(O)_2S(O^-)$ - or a carboxylate radical $-C(O)O^-$; more preferentially sulfonate.

As examples of dyes of formula (IX), mention may be made especially of: Acid Blue 1; Acid Blue 3; Acid Blue 7, Acid Blue 9; Acid Violet 49; Acid Green 3; Acid Green 5 and Acid Green 50.

e) the xanthene-based dyes of formula (X):



in which formula (X):

- R_{45} , R_{46} , R_{47} and R_{48} , which may be identical or different, represent a hydrogen or halogen atom;

- R_{49} , R_{50} , R_{51} and R_{52} , which may be identical or different, represent a hydrogen or halogen atom, or a group chosen from:

- alkyl;
- alkoxy, alkylthio;
- hydroxyl, mercapto;
- nitro, nitroso;

- $(O)_2S(O^-)$ -, M^+ with M^+ representing a hydrogen atom or a cationic counterion;

- $(O)CO^-$ -, M^+ with M^+ as defined previously;

preferably, R_{49} , R_{50} , R_{51} and R_{52} represent a hydrogen or halogen atom;

5 - G represents an oxygen or sulfur atom or a group NR_e with R_e as defined previously; more particularly G represents an oxygen atom;

- L represents an alkoxide O^- , M^+ ; a thioalkoxide S^- , M^+ or a group NR_f , with R_f representing a hydrogen atom or an alkyl group and M^+ as defined previously; M^+ is particularly sodium or potassium;

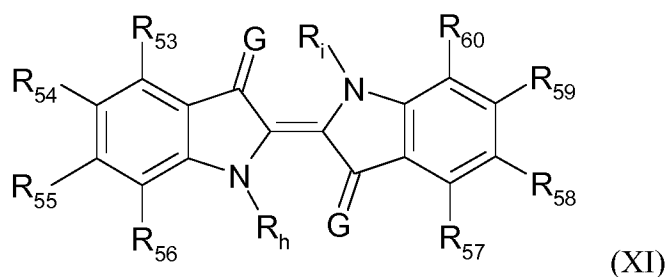
10 - L' represents an oxygen or sulfur atom or an ammonium group: $N^+R_fR_g$, with R_f and R_g , which may be identical or different, representing a hydrogen atom, an alkyl group or optionally substituted aryl; L' represents more particularly an oxygen atom or a phenylamino group optionally substituted with one or more alkyl or $(O)_mS(O^-)$ -, M^+ groups with m and M^+ as defined previously;

15 - Q and Q', which may be identical or different, represent an oxygen or sulfur atom; more particularly Q and Q' represent an oxygen atom;

- M^+ is as defined previously.

As examples of dyes of formula (X), mention may in particular be made of:
Acid Yellow 73; Acid Red 51; Acid Red 52; Acid Red 87; Acid Red 92; Acid Red 95
20 and Acid Violet 9;

f) the indole-based dyes of formula (XI):



in which formula (XI):

25 - R_{53} , R_{54} , R_{55} , R_{56} , R_{57} , R_{58} , R_{59} and R_{60} , which may be identical or different, represent a hydrogen atom or group chosen from:

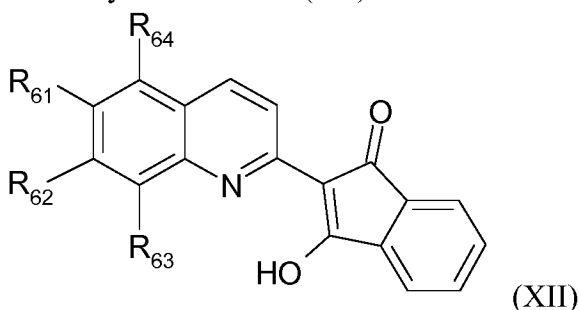
- alkyl;
- alkoxy, alkylthio;
- hydroxyl, mercapto;

- nitro, nitroso;
- $R^\circ-C(X)-X'$ -, $R^\circ-X'-C(X)$ -, $R^\circ-X'-C(X)-X''$ - with R° representing a hydrogen atom or an alkyl or aryl group; X, X' and X'', which may be identical or different, representing an oxygen or sulfur atom, or NR with R representing a hydrogen atom or an alkyl group;
- $(O)_2S(O^-)$ -, M^+ with M^+ representing a hydrogen atom or a cationic counterion;
- $(O)CO^-$ -, M^+ with M^+ as defined previously;
- G represents an oxygen or sulfur atom or a group NR_e with R_e as defined previously; more particularly G represents an oxygen atom;
- R_i and R_h , which may be identical or different, represent a hydrogen atom or an alkyl group;

it being understood that formula (XI) comprises at least one sulfonate radical $(O)_2S(O^-)$ -, M^+ or one carboxylate radical $-C(O)O^-$ -, M^+ ; more preferentially sodium sulfonate.

As an example of a dye of formula (XI), mention may be made especially of: Acid Blue 74.

g) the quinoline-based dyes of formula (XII):



in which formula (XII):

- R_{61} represents a hydrogen or halogen atom or an alkyl group;
- R_{62} , R_{63} , and R_{64} , which may be identical or different, represent a hydrogen atom or a group $(O)_2S(O^-)$ -, M^+ with M^+ representing a hydrogen atom or a cationic counterion;
- or alternatively R_{61} with R_{62} , or R_{61} with R_{64} , together form a benzo group optionally substituted with one or more groups $(O)_2S(O^-)$ -, M^+ with M^+ representing a hydrogen atom or a cationic counterion;

it being understood that formula (XII) comprises at least one sulfonate radical $(O)_2S(O^-)$ -, more preferentially sodium sulfonate.

As examples of dyes of formula (XII), mention may be made especially of: Acid Yellow 2, Acid Yellow 3 and Acid Yellow 5.

The anionic direct dye(s) that may be used according to the invention are preferentially chosen from those of formulae (I), (II), (III), (IV), (V), (VI), (VII), (VIII), (IX), (X), (XI) and (XII) as defined above.

More particularly, the dyes of formulae (I) to (X) that may be used according to the invention are chosen from:

(C.I. 45380)	Acid Red 87 (formula X)
(C.I. 10316)	Sodium salt of 2,4-dinitro-1-naphthol-7-sulfonic acid (formula VIII)
(C.I. 10383)	Acid Orange 3 (formula VII)
(C.I. 13015)	Acid Yellow 9 / Food Yellow 2 (formula I)
(C.I. 14780)	Direct Red 45 / Food Red 13 (formula I)
(C.I. 13711)	Acid Black 52 (formula I)
(C.I. 13065)	Acid Yellow 36 (formula I)
(C.I. 14700)	Sodium salt of 1-hydroxy-2-(2',4'-xylyl-5-sulfonatoazo)naphthalene-4-sulfonic acid / Food Red 1 (formula I)
(C.I. 14720)	Acid Red 14 / Food Red 3 / Mordant Blue 79 (formula I)
(C.I. 14805)	Sodium salt of 4-hydroxy-3-[(2-methoxy-5-nitrophenyl)diaza]-6-(phenylamino)naphthalene-2-sulfonic acid / Acid Brown 4 (formula I)
(C.I. 15510)	Acid Orange 7 / Pigment Orange 17 / Solvent Orange 49 / Orange 4 (formula I)
(C.I. 15985)	Food Yellow 3 / Pigment Yellow 104 (formula I)
(C.I. 16185)	Acid Red 27 / Food Red 9 (formula I)
(C.I. 16230)	Acid Orange 10 / Food Orange 4 (formula I)

(C.I. 16250)	Acid Red 44 (formula I)
(C.I. 17200)	Acid Red 33 / Food Red 12 (formula I)
(C.I. 15685)	Acid Red 184 (formula I)
(C.I. 19125)	Acid Violet 3 (formula I)
(C.I. 18055)	Sodium salt of 1-hydroxy-2-(4'-acetamidophenylazo)-8-acetamidonaphthalene-3,6-disulfonic acid / Acid Violet 7 / Food Red 11 (formula I)
(C.I. 18130)	Acid Red 135 (formula I)
(C.I. 19130)	Acid Yellow 27 (formula III)
(C.I. 19140)	Acid Yellow 23 / Food Yellow 4 / Yellow 5 (formula III)
(C.I. 20170)	4'-(sulfonato-2'',4''-dimethyl)bis(2,6-phenylazo)-1,3-dihydroxybenzene / Acid Orange 24 (formula I)
(C.I. 20470)	Sodium salt of 1-amino-2-(4'-nitrophenylazo)-7-phenylazo-8-hydroxynaphthalene-3,6-disulfonic acid / Acid Black 1 (formula I)
(C.I. 23266)	(4-((4-methylphenyl)sulfonyloxy)phenylazo)-2,2'-dimethyl-4-((2-hydroxy-5,8-disulfonato)naphthylazo)biphenyl / Acid Red 111 (formula II)
(C.I. 27755)	Food Black 2 (formula I)
(C.I. 25440)	1-(4'-sulfonatophenylazo)-4-((2''-hydroxy-3''-acetylamino-6'',8''-disulfonato)naphthylazo)-6-sulfonatophthalene (tetrasodium salt) / Food Black 1 (formula I)
(C.I. 42090)	Acid Blue 9 (formula IX)
(C.I. 60730)	Acid Violet 43 / Ext Violet 2 (formula V)
(C.I. 61570)	Acid Green 25 (formula V)
(C.I. 62045)	Sodium salt of 1-amino-4-cyclohexylamino-9,10-anthraquinone-2-sulfonic acid / Acid Blue 62 (formula V)
(C.I. 62105)	Acid Blue 78 (formula V)

(C.I. 14710)	Sodium salt of 4-hydroxy-3-((2-methoxyphenyl)azo)-1-naphthalenesulfonic acid / Acid Red 4 (formula I)
	2-Piperidino-5-nitrobenzenesulfonic acid (formula VIII)
	2-(4'-N,N-(2''-Hydroxyethyl)amino-2'-nitro)anilineethanesulfonic acid (formula VIII)
	4- β -Hydroxyethylamino-3-nitrobenzene sulfonic acid (formula VIII)
(C.I. 42640)	Acid Violet 49 (formula IX)
(C.I. 42080)	Acid Blue 7 (formula IX)
(C.I. 58005)	Sodium salt of 1,2-dihydroxy-3-sulfoanthraquinone / Mordant Red 3 (formula V)
(C.I. 62055)	Sodium salt of 1-amino-9,10-dihydro-9,10-dioxo-4-(phenylamino) 2-anthracenesulfonic acid / Acid Blue 25 (formula V)
(C.I. 14710)	Sodium salt of 4-hydroxy-3-((2-methoxyphenyl)azo)-1-naphthalenesulfonic acid / Acid Red 4 (formula I)
(C.I. 16255)	Acid Red 18 (formula II)

Most of these dyes are described in particular in the *Colour Index* published by The Society of Dyers and Colourists, P.O. Box 244, Perkin House, 82 Grattan Road,
5 Bradford, Yorkshire, BD12 JBN England.

The anionic direct dye(s) that are particularly preferred according to the invention are chosen from 1,2-dihydroxy-9,10-anthraquinone-3-sulfonic acid (C.I. 58005), the monosodium salt of 2-[(9,10-dihydro-4-hydroxy-9,10-dioxo-1-anthracenyl)amino]-5-methylbenzenesulfonic acid (C.I. 60730), the monosodium salt
10 of 4-[(2-hydroxy-1-naphthyl)azo]benzenesulfonic acid (C.I. 15510), the disodium salt of 6-hydroxy-5-[(4-sulfophenyl)azo]-2-naphthalenesulfonic acid (C.I. 15985), the disodium salt of 5-amino-4-hydroxy-3-(phenylazo)-2,7-naphthalenedisulfonic acid (C.I. 17200), the disodium salt of 1-amino-2-(4'-nitrophenylazo)-7-phenylazo-8-hydroxy-3,6-naphthalenedisulfonic acid (C.I. 20470), the disodium salt of N-ethyl-N-
15 [4-[[4-[ethyl[3-sulfophenyl)methyl]amino]phenyl](2-sulfophenyl)methylene]-2,5-

cyclohexadien-1-ylidene]-3-sulfobenzenemethanaminium hydroxide (C.I. 42090), the disodium salt of 2,2'-[(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)diimino]bis[5-methyl]benzenesulfonic acid (C.I. 61570), the trisodium salt of 5-hydroxy-1-(4-sulfophenyl)-4-(4-sulfophenylazo)pyrazole-3-carboxylic acid (C.I. 19140), sodium 4-
5 [(9,10-dihydro-4-hydroxy-9,10-dioxo-1-anthryl)amino]toluene-3-sulfonate (C.I. 60730), the trisodium salt of 7-hydroxy-8-[(4-sulfo-1-naphthalenyl)azo]-1,3-naphthalenedisulfonic acid (C.I. 16255), and a mixture of these compounds.

Use may also be made of compounds corresponding to the mesomeric forms, tautomeric forms, of structures (I) to (XII).

10 In a preferred variant of the invention, the direct dye(s) are chosen from anionic direct dyes.

The direct dye(s) represent(s) a total content of at least 0.1% by weight, preferably at least 0.15% by weight, more preferentially from 0.2% to 5% by weight, relative to the total weight of the composition.

15 As indicated previously, the aqueous phase of the composition according to the invention comprises one or more aqueous-phase thickeners.

According to the present invention, the term "aqueous-phase thickener" means compounds which, by their presence at a concentration of 0.05% by weight, increase the viscosity of the aqueous phase into which they are introduced by at least
20 20 cps, preferably by at least 50 cps, at room temperature (25°C), at atmospheric pressure and at a shear rate of 1 s^{-1} (the viscosity may be measured using a cone/plate viscometer, a Haake R600 rheometer or the like).

The aqueous-phase thickener(s) are preferentially chosen from non-associative thickening polymers bearing sugar units, non-associative thickening
25 polymers without sugar units, associative thickening polymers, and mixtures of these compounds.

For the purposes of the present invention, the term "sugar unit" means an oxygen-bearing hydrocarbon-based compound containing several alcohol functions, with or without aldehyde or ketone functions, and which comprises at least 4 carbon
30 atoms.

The sugar units may be optionally modified by substitution, and/or by oxidation and/or by dehydration.

The sugar units that may be included in the composition of the aqueous-phase thickening polymers of the invention are preferably derived from the following sugars:

glucose, galactose, arabinose, rhamnose, mannose, xylose, fucose, anhydrogalactose, galacturonic acid, glucuronic acid, mannuronic acid, galactose sulfate, anhydrogalactose sulfate and fructose.

5 Non-associative thickening polymers bearing sugar units that may especially be mentioned include native gums such as:

a) tree or shrub exudates, including:

- gum arabic (branched polymer of galactose, arabinose, rhamnose and glucuronic acid);

10 - ghatti gum (polymer derived from arabinose, galactose, mannose, xylose and glucuronic acid);

- karaya gum (polymer derived from galacturonic acid, galactose, rhamnose and glucuronic acid);

- gum tragacanth (or tragacanth) (polymer of galacturonic acid, galactose, fucose, xylose and arabinose);

15 b) gums resulting from algae, including:

- agar (polymer derived from galactose and anhydrogalactose);

- alginates (polymers of mannuronic acid and of glucuronic acid);

- carrageenans and furcellerans (polymers of galactose sulfate and of anhydrogalactose sulfate);

20 c) gums resulting from seeds or tubers, including:

- guar gum (polymer of mannose and galactose);

- locust bean gum (polymer of mannose and galactose);

- fenugreek gum (polymer of mannose and galactose);

- tamarind gum (polymer of galactose, xylose and glucose);

25 - konjac gum (polymer of glucose and mannose);

d) microbial gums, including:

- xanthan gum (polymer of glucose, mannose acetate, mannose/pyruvic acid and glucuronic acid);

30 - gellan gum (polymer of partially acylated glucose, rhamnose and glucuronic acid);

- scleroglucan gum (glucose polymer);

e) plant extracts, including:

- cellulose (glucose polymer);

- starch (glucose polymer) and

- inulin.

These polymers can be physically or chemically modified. As physical treatment, mention may in particular be made of the temperature.

Chemical treatments that may be mentioned include esterification, etherification, amidation and oxidation reactions. These treatments can lead to polymers that may especially be nonionic, anionic or amphoteric.

Preferably, these chemical or physical treatments are applied to guar gums, locust bean gums, starches and celluloses.

The nonionic guar gums that may be used according to the invention may be modified with C₁-C₆ (poly)hydroxyalkyl groups.

Among the C₁-C₆ (poly)hydroxyalkyl groups, mention may be made, for example, of hydroxymethyl, hydroxyethyl, hydroxypropyl and hydroxybutyl groups.

These guar gums are well known in the prior art and may be prepared, for example, by reacting the corresponding alkene oxides, for instance, propylene oxides, with the guar gum so as to obtain a guar gum modified with hydroxypropyl groups.

The degree of hydroxyalkylation preferably varies from 0.4 to 1.2 and corresponds to the number of alkylene oxide molecules consumed by the number of free hydroxyl functional groups present on the guar gum.

Such nonionic guar gums optionally modified with hydroxyalkyl groups are sold, for example, under the trade names Jaguar HP8, Jaguar HP60 and Jaguar HP120 by the company Rhodia Chimie.

The botanical origin of the starch molecules that may be used in the present invention may be cereals or tubers. Thus, the starches are chosen, for example, from corn starch, rice starch, cassava starch, barley starch, potato starch, wheat starch, sorghum starch and pea starch.

The starches may be chemically or physically modified, in particular by one or more of the following reactions: pregelatinization, oxidation, crosslinking, esterification, etherification, amidation, heat treatments.

Distarch phosphates or compounds rich in distarch phosphate will preferentially be used, for instance the product sold under the references Prejel VA-70-T AGGL (gelatinized hydroxypropyl cassava distarch phosphate), Prejel TK1 (gelatinized cassava distarch phosphate) and Prejel 200 (gelatinized acetyl cassava distarch phosphate) by the company Avebe, or Structure Zea from National Starch (gelatinized corn distarch phosphate).

According to the invention, amphoteric starches may also be used, these amphoteric starches comprising one or more anionic groups and one or more cationic groups. The anionic and cationic groups may be bonded to the same reactive site of the starch molecule or to different reactive sites; they are preferably bonded to the same reactive site. The anionic groups may be of carboxylic, phosphate or sulfate type, preferably carboxylic. The cationic groups may be of primary, secondary, tertiary or quaternary amine type.

The starch molecules may be derived from any plant source of starch, in particular such as corn, potato, oat, rice, tapioca, sorghum, barley or wheat. It is also possible to use the hydrolyzates of the starches mentioned above. The starch is preferably derived from potato.

The non-associative thickening polymers of the invention may be cellulose-based polymers not comprising a C₁₀-C₃₀ fatty chain in their structure.

According to the invention, the term "*cellulose-based polymer*" means any polysaccharide compound having in its structure sequences of glucose residues linked together via β -1,4 bonds; in addition to unsubstituted celluloses, the cellulose derivatives may be anionic, cationic, amphoteric or nonionic.

Thus, the cellulose polymers that may be used according to the invention may be chosen from unsubstituted celluloses, including those in a microcrystalline form, and cellulose ethers.

Among these cellulose-based polymers, cellulose ethers, cellulose esters and cellulose ester ethers are distinguished.

Among the cellulose esters are mineral esters of cellulose (cellulose nitrates, sulfates, phosphates, etc.), organic cellulose esters (cellulose monoacetates, triacetates, amidopropionates, acetatebutyrates, acetatepropionates and acetatetrimellitates, etc.), and mixed organic/mineral esters of cellulose, such as cellulose acetatebutyrate sulfates and cellulose acetatepropionate sulfates. Among the cellulose ester ethers, mention may be made of hydroxypropylmethylcellulose phthalates and ethylcellulose sulfates.

Among the nonionic cellulose ethers without a C₁₀-C₃₀ fatty chain, i.e. which are "non-associative", mention may be made of (C₁-C₄)alkylcelluloses, such as methylcelluloses and ethylcelluloses (for example, Ethocel standard 100 Premium from Dow Chemical); (poly)hydroxy(C₁-C₄)alkylcelluloses, such as hydroxymethylcelluloses, hydroxyethylcelluloses (for example, Natrosol 250 HHR

provided by Aqualon) and hydroxypropylcelluloses (for example, Klucel EF from Aqualon); mixed (poly)hydroxy(C₁-C₄)alkyl-(C₁-C₄)alkylcelluloses, such as hydroxypropylmethylcelluloses (for example, Methocel E4M from Dow Chemical), hydroxyethylmethylcelluloses, hydroxyethylethylcelluloses (for example, Bermocoll E 481 FQ from Akzo Nobel) and hydroxybutylmethylcelluloses.

Among the anionic cellulose ethers without a fatty chain, mention may be made of (poly)carboxy(C₁-C₄)alkylcelluloses and salts thereof. By way of example, mention may be made of carboxymethylcelluloses, carboxymethylmethylcelluloses (for example Blanose 7M from the company Aqualon) and carboxymethylhydroxyethylcelluloses, and the sodium salts thereof.

Among the cationic cellulose ethers without a fatty chain, mention may be made of cationic cellulose derivatives such as cellulose copolymers or cellulose derivatives grafted with a water-soluble quaternary ammonium monomer, and described in particular in patent US 4 131 576, such as (poly)hydroxy(C₁-C₄)alkyl celluloses, for instance hydroxymethyl-, hydroxyethyl- or hydroxypropylcelluloses grafted in particular with a methacryloylethyltrimethylammonium, methacrylamidopropyltrimethylammonium or dimethyldiallylammonium salt. The commercial products corresponding to this definition are more particularly the products sold under the names Celquat L 200® and Celquat H 100® by the company National Starch.

Among the non-associative thickening polymers not bearing sugar units that may be used according to the invention, mention may be made of crosslinked acrylic acid or methacrylic acid homopolymers or copolymers, crosslinked 2-acrylamido-2-methylpropanesulfonic acid homopolymers and crosslinked acrylamide copolymers thereof, ammonium acrylate homopolymers, or copolymers of ammonium acrylate and of acrylamide, alone or mixtures thereof.

A first family of non-associative thickening polymers that is suitable for use is represented by crosslinked acrylic acid homopolymers.

Among the homopolymers of this type, mention may be made of those crosslinked with an allyl alcohol ether of the sugar series, for instance, the products sold under the names Carbopol 980, 981, 954, 2984 and 5984 by the company Noveon or the products sold under the names Synthalen M and Synthalen K by the company VSA. These polymers have the INCI name Carbomer.

The non-associative thickening polymers may also be crosslinked (meth)acrylic acid copolymers, such as the polymer sold under the name Aqua SF1 by the company Noveon.

5 The non-associative thickening polymers may be chosen from crosslinked 2-acrylamido-2-methylpropanesulfonic acid homopolymers and the crosslinked acrylamide copolymers thereof.

10 Among the partially or totally neutralized crosslinked copolymers of 2-acrylamido-2-methylpropanesulfonic acid and of acrylamide, mention may be made in particular of the product described in Example 1 of document EP 503 853, and reference may be made to said document as regards these polymers.

The composition may similarly comprise, as non-associative thickening polymers, ammonium acrylate homopolymers or copolymers of ammonium acrylate and of acrylamide.

15 Among the ammonium acrylate homopolymers that may be mentioned is the product sold under the name Microsap PAS 5193 by the company Hoechst. Among the copolymers of ammonium acrylate and of acrylamide that may be mentioned is the product sold under the name Bozepol C Nouveau or the product PAS 5193 sold by the company Hoechst. Reference may be made especially to FR 2 416 723, US 2 798 053 and US 2 923 692 as regards the description and preparation of such compounds.

20 Use may also be made of cationic thickening polymers of acrylic type.

Among the aqueous-phase-thickening polymers, mention may also be made of associative polymers that are well known to those skilled in the art and especially of nonionic, anionic, cationic or amphoteric nature.

25 It is recalled that associative polymers are polymers that are capable, in an aqueous medium, of reversibly associating with each other or with other molecules.

Their chemical structure more particularly comprises at least one hydrophilic region and at least one hydrophobic region.

30 The term "hydrophobic group" means a radical or polymer with a saturated or unsaturated, linear or branched hydrocarbon-based chain, comprising at least 10 carbon atoms, preferably from 10 to 30 carbon atoms, in particular from 12 to 30 carbon atoms and more preferentially from 18 to 30 carbon atoms.

Preferably, the hydrocarbon-based group is derived from a monofunctional compound. By way of example, the hydrophobic group may be derived from a fatty

alcohol such as stearyl alcohol, dodecyl alcohol or decyl alcohol. It may also denote a hydrocarbon-based polymer, for instance polybutadiene.

Among the associative polymers of anionic type that may be mentioned are:

- 5 - (a) those comprising at least one hydrophilic unit and at least one fatty-chain allyl ether unit, more particularly those whose hydrophilic unit is constituted by an ethylenic unsaturated anionic monomer, more particularly a vinylcarboxylic acid and most particularly an acrylic acid or a methacrylic acid or mixtures thereof.

10 Among these anionic associative polymers, the ones that are particularly preferred according to the invention are polymers formed from 20% to 60% by weight of acrylic acid and/or of methacrylic acid, from 5% to 60% by weight of lower alkyl (meth)acrylates, from 2% to 50% by weight of fatty-chain allyl ether, and from 0 to 1% by weight of a crosslinking agent which is a well-known copolymerizable unsaturated polyethylenic monomer, for instance diallyl phthalate, allyl (meth)acrylate, divinylbenzene, (poly)ethylene glycol dimethacrylate or
15 methylenebisacrylamide.

20 Among the latter polymers, the ones most particularly preferred are crosslinked terpolymers of methacrylic acid, of ethyl acrylate and of polyethylene glycol (10 OE) stearyl alcohol ether (Steareth-10), especially those sold by the company CIBA under the names Salcare SC80® and Salcare SC90®, which are aqueous 30% emulsions of a crosslinked terpolymer of methacrylic acid, of ethyl acrylate and of steareth-10 allyl ether (40/50/10).

- 25 - (b) those comprising i) at least one hydrophilic unit of unsaturated olefinic carboxylic acid type, and ii) at least one hydrophobic unit of the (C₁₀-C₃₀) alkyl ester of an unsaturated carboxylic acid type.

30 (C₁₀-C₃₀) Alkyl esters of unsaturated carboxylic acids that are useful in the invention comprise, for example, lauryl acrylate, stearyl acrylate, decyl acrylate, isodecyl acrylate and dodecyl acrylate, and the corresponding methacrylates, lauryl methacrylate, stearyl methacrylate, decyl methacrylate, isodecyl methacrylate and dodecyl methacrylate.

30 Anionic polymers of this type are described and prepared, for example, according to patents US 3 915 921 and US 4 509 949.

 Among the anionic associative polymers of this type that will be used more particularly are those constituted of from 95% to 60% by weight of acrylic acid (hydrophilic unit), 4% to 40% by weight of C₁₀-C₃₀ alkyl acrylate (hydrophobic unit)

and 0 to 6% by weight of crosslinking polymerizable monomer, or alternatively those constituted of from 98% to 96% by weight of acrylic acid (hydrophilic unit), 1% to 4% by weight of C₁₀-C₃₀ alkyl acrylate (hydrophobic unit) and 0.1% to 0.6% by weight of crosslinking polymerizable monomer such as those described above.

5 Among said polymers above, the ones most particularly preferred according to the present invention are the products sold by the company Goodrich under the trade names Pemulen TR1®, Pemulen TR2®, Carbopol 1382®, and even more preferentially Pemulen TR1®, and the product sold by the company SEPPIC under the name Coatex SX®.

10 Mention may also be made of the acrylic acid/lauryl methacrylate/vinylpyrrolidone terpolymer sold under the name Acrylidone LM by the company ISP;

 - (c) maleic anhydride/C₃₀-C₃₈ α -olefin/alkyl maleate terpolymers, such as the product (maleic anhydride/C₃₀-C₃₈ α -olefin/isopropyl maleate copolymer) sold under
15 the name Performa V 1608® by the company Newphase Technologies.

 - (d) acrylic terpolymers comprising:

 i) about 20% to 70% by weight of an α,β -monoethylenically unsaturated carboxylic acid [A],

 ii) about 20% to 80% by weight of an α,β -monoethylenically unsaturated non-
20 surfactant monomer other than [A],

 iii) about 0.5% to 60% by weight of a nonionic monourethane which is the product of reaction of a monohydric surfactant with a monoethylenically unsaturated monoisocyanate,

 such as those described in patent application EP-A-0 173 109 and more
25 particularly the terpolymer described in Example 3, namely a methacrylic acid/methyl acrylate/beheryl alcohol dimethyl-meta-isopropenylbenzylisocyanate ethoxylated (40 OE) terpolymer, as an aqueous 25% dispersion;

 - (e) copolymers comprising among their monomers an α,β -
30 monoethylenically unsaturated carboxylic acid and an ester of an α,β -monoethylenically unsaturated carboxylic acid and of an oxyalkylenated fatty alcohol.

 Preferentially, these compounds also comprise as monomer an ester of an α,β -monoethylenically unsaturated carboxylic acid and of a C₁-C₄ alcohol.

 An example of a compound of this type that may be mentioned is Aculyn 22® sold by the company Röhm & Haas, which is a methacrylic acid/ethyl

acrylate/oxyalkylenated stearyl methacrylate terpolymer; and also Aculyn 88, also sold by the company Röhm & Haas.

- 5 - (f) amphiphilic polymers comprising at least one ethylenically unsaturated monomer bearing a sulfonic group, in free or partially or totally neutralized form and comprising at least one hydrophobic part. These polymers may be crosslinked or non-crosslinked. They are preferably crosslinked.

10 The ethylenically unsaturated monomers bearing a sulfonic group are especially chosen from vinylsulfonic acid, styrenesulfonic acid, (meth)acrylamido(C₁-C₂₂)alkylsulfonic acids, N-(C₁-C₂₂)alkyl(meth)acrylamido(C₁-C₂₂)alkylsulfonic acids such as undecylacrylamidomethanesulfonic acid, and also partially or totally neutralized forms thereof, and mixtures thereof.

15 (Meth)acrylamido(C₁-C₂₂)alkylsulfonic acids, for instance acrylamidomethanesulfonic acid, acrylamidoethanesulfonic acid, acrylamidopropanesulfonic acid, 2-acrylamido-2-methylpropanesulfonic acid, methacrylamido-2-methylpropanesulfonic acid, 2-acrylamido-n-butanesulfonic acid, 2-acrylamido-2,4,4-trimethylpentanesulfonic acid, 2-methacrylamidododecylsulfonic acid or 2-acrylamido-2,6-dimethyl-3-heptanesulfonic acid, and also partially or totally neutralized forms thereof, will more preferentially be used.

20 2-Acrylamido-2-methylpropanesulfonic acid (AMPS), and also partially or totally neutralized forms thereof, will more particularly be used.

25 The polymers of this family may be chosen especially from random amphiphilic AMPS polymers modified by reaction with a C₆-C₂₂ n-monoalkylamine or di-n-alkylamine, and such as those described in patent application WO 00/31154. These polymers may also contain other ethylenically unsaturated hydrophilic monomers chosen, for example, from (meth)acrylic acids, β-substituted alkyl derivatives thereof or esters thereof obtained with monoalcohols or mono- or polyalkylene glycols, (meth)acrylamides, vinylpyrrolidone, maleic anhydride, itaconic acid or maleic acid, or mixtures of these compounds.

30 The preferred polymers of this family are chosen from amphiphilic copolymers of AMPS and of at least one ethylenically unsaturated hydrophobic monomer.

These same copolymers may also contain one or more ethylenically unsaturated monomers not comprising a fatty chain, such as (meth)acrylic acids, β-substituted alkyl derivatives thereof or esters thereof obtained with monoalcohols or

mono- or polyalkylene glycols, (meth)acrylamides, vinylpyrrolidone, maleic anhydride, itaconic acid or maleic acid, or mixtures of these compounds.

These copolymers are described especially in patent application EP-A-0 750 899, patent US 5 089 578 and in the following publications from Yotaro Morishima:

5 - Self-assembling amphiphilic polyelectrolytes and their nanostructures, Chinese Journal of Polymer Science, Vol. 18, No. 40, (2000), 323-336;

 - Micelle formation of random copolymers of sodium 2-(acrylamido)-2-methylpropanesulfonate and a nonionic surfactant macromonomer in water as studied by fluorescence and dynamic light scattering, Macromolecules, 2000, Vol. 33, No. 10,
10 3694-3704;

 - Solution properties of micelle networks formed by nonionic moieties covalently bound to a polyelectrolyte: salt effects on rheological behavior - Langmuir, 2000 Vol. 16, No. 12, 5324-5332;

 - Stimuli responsive amphiphilic copolymers of sodium 2-(acrylamido)-2-methylpropanesulfonate and associative macromonomers, Polym. Preprint, Div. Polym. Chem., 40(2), (1999), 220-221.
15

 Among these polymers, mention may be made of:

 - crosslinked or non-crosslinked, neutralized or non-neutralized copolymers, comprising from 15% to 60% by weight of AMPS units and from 40% to 85% by weight of (C₈-C₁₆)alkyl(meth)acrylamide or (C₈-C₁₆)alkyl(meth)acrylate units relative
20 to the polymer, such as those described in patent application EP-A750 899;

 - terpolymers comprising from 10 mol% to 90 mol% of acrylamide units, from 0.1 mol% to 10 mol% of AMPS units and from 5 mol% to 80 mol% of n-(C₆-C₁₈)alkylacrylamide units, such as those described in patent US-5 089 578.

25 Mention may also be made of copolymers of totally neutralized AMPS and of dodecyl methacrylate, and also crosslinked and non-crosslinked copolymers of AMPS and of n-dodecylmethacrylamide, such as those described in the Morishima articles mentioned above.

 Among the cationic associative polymers, mention may be made of:

30 (a) cationic associative polyurethanes;

 (b) the compound sold by the company Noveon under the name Aqua CC and which corresponds to the INCI name Polyacrylate-1 Crosspolymer.

 Polyacrylate-1 Crosspolymer is the product of polymerization of a monomer mixture comprising:

- a di(C₁-C₄ alkyl)amino(C₁-C₆ alkyl) methacrylate,
- one or more C₁-C₃₀ alkyl esters of (meth)acrylic acid,
- a polyethoxylated C₁₀-C₃₀ alkyl methacrylate (20-25 mol of ethylene oxide units),

- 5 - a 30/5 polyethylene glycol/polypropylene glycol allyl ether,
- a hydroxy(C₂-C₆ alkyl) methacrylate, and
- an ethylene glycol dimethacrylate.

(c) quaternized (poly)hydroxyethylcelluloses modified with groups comprising at least one fatty chain, such as alkyl, arylalkyl or alkylaryl groups comprising at least 8 carbon atoms, or mixtures thereof. The alkyl radicals borne by the above quaternized celluloses or hydroxyethylcelluloses preferably comprise from 8 to 30 carbon atoms. The aryl radicals preferably denote phenyl, benzyl, naphthyl or anthryl groups. Examples of quaternized alkylhydroxyethylcelluloses containing C₈-C₃₀ fatty chains that may be indicated include the products Quatrisoft LM 200®, Quatrisoft LM-X 529-18-A®, Quatrisoft LM-X 529-18-B® (C₁₂ alkyl) and Quatrisoft LM-X 529-8® (C₁₈ alkyl) sold by the company Aqualon, and the products Crodacel QM®, Crodacel QL® (C₁₂ alkyl) and Crodacel QS® (C₁₈ alkyl) sold by the company Croda and the product Softcat SL 100® sold by the company Aqualon;

(d) cationic polyvinyl lactam polymers.

20 Such polymers are described, for example, in patent application WO-00/68282.

As cationic poly(vinyl lactam) polymers according to the invention, vinylpyrrolidone/dimethylaminopropylmethacrylamide/dodecyldimethylmethacrylamidopropylammonium tosylate terpolymers, vinylpyrrolidone/dimethylaminopropylmethacrylamide/cocoyldimethylmethacrylamidopropylammonium tosylate terpolymers, vinylpyrrolidone/dimethylaminopropylmethacrylamide/lauryldimethylmethacrylamidopropylammonium tosylate or chloride terpolymers are used in particular.

The amphoteric associative polymers are preferably chosen from those comprising at least one noncyclic cationic unit. Even more particularly, those prepared from or comprising 1 to 20 mol%, preferably 1.5 to 15 mol% and even more particularly 1.5 to 6 mol% of fatty-chain monomer relative to the total number of moles of monomers are preferred.

Amphoteric associative polymers according to the invention are described and prepared, for example, in patent application WO 98/44012.

Among the amphoteric associative polymers according to the invention, the ones that are preferred are acrylic acid/(meth)acrylamidopropyltrimethylammonium chloride/stearyl methacrylate terpolymers.

The associative polymers of nonionic type that may be used according to the invention are preferably chosen from:

(a) copolymers of vinylpyrrolidone and of fatty-chain hydrophobic monomers, of which examples that may be mentioned include:

- the products Antaron V216® or Ganex V216® (vinylpyrrolidone/hexadecene copolymer), sold by the company ISP,
- the products Antaron V220® or Ganex V220® (vinylpyrrolidone/eicosene copolymer), sold by the company ISP,

(b) copolymers of C₁-C₆ alkyl methacrylates or acrylates and of amphiphilic monomers comprising at least one fatty chain, for instance, the oxyethylenated methyl acrylate/stearyl acrylate copolymer sold by the company Goldschmidt under the name Antil 208®;

(c) copolymers of hydrophilic methacrylates or acrylates and of hydrophobic monomers comprising at least one fatty chain, for instance the polyethylene glycol methacrylate/lauryl methacrylate copolymer;

(d) polyurethane polyethers comprising in their chain both hydrophilic blocks usually of polyoxyethylenated nature and hydrophobic blocks, which may be aliphatic sequences alone and/or cycloaliphatic and/or aromatic sequences;

(e) polymers with an aminoplast ether backbone containing at least one fatty chain, such as the Pure Thix® compounds sold by the company Sud-Chemie;

(f) celluloses or derivatives thereof, modified with groups comprising at least one fatty chain, such as alkyl, arylalkyl or alkylaryl groups or mixtures thereof wherein the alkyl groups are of C₈, and in particular:

* nonionic alkylhydroxyethylcelluloses such as the products Natrosol Plus Grade 330 CS and Polysurf 67 (C₁₆ alkyl) sold by the company Aqualon;

* nonionic nonoxynylhydroxyethylcelluloses such as the product Amercell HM-1500 sold by the company Amerchol;

* nonionic alkylcelluloses such as the product Bermocoll EHM 100 sold by the company Berol Nobel;

(g) associative guar derivatives, for instance hydroxypropyl guar modified with a fatty chain, such as the product Esaflor HM 22 (modified with a C₂₂ alkyl chain) sold by the company Lamberti; the product Miracare XC 95-3 (modified with a C₁₄ alkyl chain) and the product RE 205-146 (modified with a C₂₀ alkyl chain) sold by Rhodia Chimie.

Preferably, the polyurethane polyethers comprise at least two hydrocarbon-based lipophilic chains containing from 6 to 30 carbon atoms, separated by a hydrophilic block, the hydrocarbon-based chains possibly being side chains or chains at the end of the hydrophilic block. In particular, it is possible for one or more side chains to be envisaged. In addition, the polymer may comprise a hydrocarbon-based chain at one end or at both ends of a hydrophilic block.

The polyurethane polyethers may be multiblock, in particular in triblock form. The hydrophobic blocks may be at each end of the chain (for example: triblock copolymer bearing a hydrophilic central block) or distributed both at the ends and in the chain (for example, multiblock copolymer). These same polymers may also be graft polymers or star polymers.

The nonionic fatty-chain polyurethane polyethers may be triblock copolymers, the hydrophilic block of which is a polyoxyethylene chain comprising from 50 to 1000 oxyethylene groups. The nonionic polyurethane polyethers comprise a urethane bond between the hydrophilic blocks, hence the origin of the name.

By extension, also included among the nonionic fatty-chain polyurethane polyethers are those in which the hydrophilic blocks are linked to the lipophilic blocks via other chemical bonds.

As examples of nonionic fatty-chain polyurethane polyethers that may be used in the invention, use may also be made of Rheolate 205® bearing a urea function, sold by the company Rheox, or Rheolate® 208, 204 or 212, and also Acrysol RM 184®.

Mention may also be made of the product Elfacos T210® bearing a C₁₂-C₁₄ alkyl chain, and the product Elfacos T212® bearing a C₁₈ alkyl chain, from Akzo.

The product DW 1206B® from Röhm & Haas bearing a C₂₀ alkyl chain and a urethane bond, sold at a solids content of 20% in water, may also be used.

Use may also be made of solutions or dispersions of these polymers, especially in water or in aqueous-alcoholic medium. Examples of such polymers that may be mentioned include Rheolate® 255, Rheolate® 278 and Rheolate® 244 sold by

the company Rheox. Use may also be made of the products DW 1206F and DW 1206J sold by the company Röhm & Haas.

The polyurethane polyethers that may be used according to the invention are in particular those described in the article by G. Fonnum, J. Bakke and Fk. Hansen -
5 *Colloid Polym. Sci.*, 271, 380-389 (1993).

It is even more particularly preferred to use a polyurethane polyether that may be obtained by polycondensation of at least three compounds comprising (i) at least one polyethylene glycol comprising from 150 to 180 mol of ethylene oxide, (ii) stearyl alcohol or decyl alcohol, and (iii) at least one diisocyanate.

10 Such polyurethane polyethers are sold especially by the company Röhm & Haas under the names Aculyn 46® and Aculyn 44® [Aculyn 46® is a polycondensate of polyethylene glycol containing 150 or 180 mol of ethylene oxide, of stearyl alcohol and of methylenebis(4-cyclohexyl isocyanate) (SMDI), at 15% by weight in a matrix of maltodextrin (4%) and water (81%); Aculyn 44® is a polycondensate of
15 polyethylene glycol containing 150 or 180 mol of ethylene oxide, of decyl alcohol and of methylenebis(4-cyclohexyl isocyanate) (SMDI), at 35% by weight in a mixture of propylene glycol (39%) and water (26%)].

Preferably, the aqueous-phase thickener(s) are chosen from polymers not comprising any sugar units.

20 More preferentially, the aqueous-phase thickener(s) are chosen from associative or non-associative thickening polymers bearing acrylic or methacrylic units, and polymers bearing 2-acrylamido-2-methylpropanesulfonic acid units and/or the salified form thereof.

In a preferred variant of the invention, the aqueous-phase thickener(s) are
25 chosen from acrylic acid homopolymers or copolymers, in particular acrylic acid homopolymers, homopolymers or copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the salified form thereof, in particular copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the salified form thereof, more particularly copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the
30 salified form thereof and of acrylamide or copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the salified form thereof and of hydroxyethyl acrylate, said polymers possibly being crosslinked or non-crosslinked.

The aqueous-phase thickener(s) generally represent a total content ranging from 0.05% to 15% by weight, preferably from 0.1% to 10% by weight and better still from 1% to 5% by weight, relative to the total weight of the composition.

5 The aqueous phase of the composition according to the invention also comprises one or more organic solvents.

According to the invention, the organic solvents which can be used are liquid at ambient temperature (25 ° C.) and at atmospheric pressure (760 mmHg, *ie* 1.013×10^5 Pa).

10 Preferably, the organic solvent(s) are chosen from linear or branched monoalcohols containing from 1 to 8 carbon atoms, polyols, polyethylene glycols, aromatic alcohols, and mixtures of these compounds.

Preferably, the organic solvents are chosen from ethanol, propanol, butanol, isopropanol, isobutanol, propylene glycol, dipropylene glycol, isoprene glycol, butylene glycol, glycerol, sorbitol, benzyl alcohol and phenoxyethanol, and mixtures
15 of these compounds.

Most particularly preferably, the organic solvent(s) are chosen from ethanol, dipropylene glycol and benzyl alcohol, and a mixture of these compounds.

The organic solvent(s) generally represent a total content ranging from 0.5% to 20% by weight, preferably from 1% to 15% by weight and better still from 5% to
20 10% by weight, relative to the total weight of the composition.

The aqueous phase of the composition according to the invention also comprises water.

Water generally represents from 20% to 85% by weight, preferably from 30% to 70% by weight and more preferentially from 40% to 60% by weight relative to the
25 total weight of the composition.

The aqueous phase (A) generally represents from 50% to 90% by weight, preferably from 60% to 85% by weight and more preferentially from 65% to 80% by weight relative to the total weight of the composition.

As mentioned previously, the composition according to the invention
30 comprises at least 10% by weight, relative to the total weight of the composition, of a fatty phase (B).

The fatty phase of the composition in accordance with the invention comprises one or more oils.

The term "oil" means any fatty substance that is in liquid form at room temperature (25°C) and at atmospheric pressure.

The term "fatty substance" means an organic compound that is insoluble in water at room temperature (25°C) and at atmospheric pressure (1.013×10^5 Pa) (solubility of less than 5% by weight, preferably less than 1% by weight and even more preferably less than 0.1% by weight). They bear in their structure at least one hydrocarbon-based chain comprising at least 6 carbon atoms and/or a sequence of at least two siloxane groups. In addition, the fatty substances are generally soluble in organic solvents under the same temperature and pressure conditions, for instance chloroform, dichloromethane, carbon tetrachloride, ethanol, benzene, toluene, tetrahydrofuran (THF), liquid petroleum jelly or decamethylcyclopentasiloxane.

The oil(s) present in the fatty phase of the composition according to the invention may be volatile or non-volatile.

The volatile or non-volatile oils may be hydrocarbon-based oils, especially of animal or plant origin, synthetic oils, silicone oils or fluoro oils, or mixtures thereof.

For the purposes of the present invention, the term "silicone oil" means an oil comprising at least one silicon atom, and especially at least one Si-O group.

The term "hydrocarbon-based oil" means an oil mainly containing hydrogen and carbon atoms and possibly oxygen, nitrogen, sulfur and/or phosphorus atoms. A hydrocarbon-based oil does not comprise any silicon atoms.

The oil(s) present in the fatty phase of the composition according to the invention may be non-volatile.

For the purposes of the present invention, the term "non-volatile oil" means an oil with a vapour pressure of less than 0.13 Pa (0.01 mmHg).

The non-volatile oils may be chosen especially from non-volatile hydrocarbon-based oils, which may be fluorinated, and/or non-volatile silicone oils.

As non-volatile hydrocarbon-based oils that are suitable for use in the invention, mention may be made especially of:

- hydrocarbon-based oils of animal origin,
- hydrocarbon-based oils of plant origin such as phytostearyl esters, such as phytostearyl oleate, phytostearyl isostearate and lauroyl/octyldodecyl/phytostearyl glutamate, for example sold under the name Eldew PS203 by Ajinomoto, triglycerides constituted of fatty acid esters of glycerol, the fatty acids of which may have chain lengths ranging from C₄ to C₂₄, these chains possibly being linear or branched, and

saturated or unsaturated; these oils are especially heptanoic or octanoic triglycerides, sweet almond oil, argan oil, avocado oil, groundnut oil, camellia oil, safflower oil, beauty-leaf oil, rapeseed oil, copra oil, coriander oil, marrow oil, wheatgerm oil, jojoba oil or liquid jojoba wax, linseed oil, macadamia oil, corn germ oil, hazelnut oil, walnut oil, vernonia oil, apricot kernel oil, olive oil, evening primrose oil, palm oil, passion flower oil, grapeseed oil, rose oil, castor oil, rye oil, sesame oil, rice bran oil, camelina oil, soybean oil, sunflower oil, pracaxi oil, babassu oil, mongongo oil, marula oil, arara oil, shea butter oil, Brazil nut oil; or alternatively caprylic/capric acid triglycerides, for instance those sold by the company Stéarineries Dubois or those sold under the names Miglyol 810®, 812® and 818® by the company Dynamit Nobel, and the refined plant perhydrosqualene sold under the name Fitoderm by the company Cognis; the plant squalene sold, for example, under the name Squalive by the company Biosynthis;

- hydrocarbon-based oils of mineral or synthetic origin, for instance:

- (a) synthetic ethers containing from 10 to 40 carbon atoms;
- (b) linear or branched hydrocarbons of mineral or synthetic origin, such as petroleum jelly, polydecenes, hydrogenated polyisobutene such as Parleam, and squalane, and mixtures thereof, and in particular hydrogenated polyisobutene;
- (c) synthetic esters, for instance oils of formula R_1COOR_2 in which R_1 represents a linear or branched fatty acid residue containing from 1 to 40 carbon atoms and R_2 represents a hydrocarbon-based chain that is especially branched, containing from 1 to 40 carbon atoms provided that $R_1 + R_2 \geq 10$.

The esters may be chosen especially from fatty acid esters, for instance:

- cetostearyl octanoate, isopropyl alcohol esters, such as isopropyl myristate, isopropyl palmitate, ethyl palmitate, 2-ethylhexyl palmitate, isopropyl stearate, isopropyl isostearate, isostearyl isostearate, octyl stearate, hydroxylated esters, for instance isostearyl lactate, octyl hydroxystearate, diisopropyl adipate, heptanoates, and especially isostearyl heptanoate, alcohol or polyalcohol octanoates, decanoates or ricinoleates, for instance propylene glycol dioctanoate, cetyl octanoate, tridecyl octanoate, 2-ethylhexyl 4-diheptanoate, 2-ethylhexyl palmitate, alkyl benzoates, polyethylene glycol diheptanoate, propylene glycol 2-diethylhexanoate, and mixtures thereof, C_{12} to C_{15} alcohol benzoates, hexyl laurate, neopentanoic acid esters, for instance isodecyl neopentanoate, isotridecyl neopentanoate, isostearyl neopentanoate, octyldodecyl neopentanoate, isononanoic acid esters, for instance

isononyl isononanoate, isotridecyl isononanoate, octyl isononanoate, hydroxylated esters, for instance isostearyl lactate and diisostearyl malate;

- polyol esters and pentaerythritol esters, for instance dipentaerythrityl tetrahydroxystearate/tetraisostearate;

5 - esters of diol dimers and of diacid dimers, such as Lusplan DD-DA5® and Lusplan DD-DA7® sold by the company Nippon Fine Chemical and described in patent application FR 03/02809;

10 (d) fatty alcohols that are liquid at room temperature, bearing a branched and/or unsaturated carbon-based chain containing from 12 to 26 carbon atoms, for instance 2-octyldodecanol, isostearyl alcohol, oleyl alcohol, 2-hexyldecanol, 2-butyloctanol and 2-undecyl pentadecanol;

 (e) non-salified higher fatty acids such as oleic acid, linoleic acid and linolenic acid, and mixtures thereof; and

15 (f) dialkyl carbonates, the two alkyl chains possibly being identical or different, such as the dicaprylyl carbonate sold under the name Cetiol CC® by Cognis;

 (g) and mixtures thereof.

20 The non-volatile silicone oils are chosen, for example, from non-volatile polydimethylsiloxanes (PDMSs), polydimethylsiloxanes comprising alkyl or alkoxy groups that are on the side and/or at the end of a silicone chain, these groups each containing from 2 to 24 carbon atoms, phenyl silicones, for instance phenyl trimethicones, phenyl dimethicones, phenyltrimethylsiloxydiphenylsiloxanes, diphenyl dimethicones, diphenylmethyldiphenyltrisiloxanes and 2-phenylethyl trimethylsiloxysilicates, and dimethicones or phenyl trimethicones with a viscosity of less than or equal to 100 cSt, and mixtures thereof.

25 The non-volatile oils may be chosen from mixtures of hydrocarbon-based and silicone non-volatile oils.

 The oil(s) present in the fatty phase of the composition according to the invention may also be volatile.

30 For the purposes of the present invention, the term “volatile oil” means an oil (or non-aqueous medium) that is capable of evaporating on contact with the skin in less than one hour, at room temperature and at atmospheric pressure. The volatile oil is a volatile cosmetic oil, which is liquid at room temperature, especially having a non-zero vapour pressure, at room temperature and atmospheric pressure, in particular having a vapour pressure ranging from 0.13 Pa to 40 000 Pa (10^{-3} to 300 mmHg), in

particular ranging from 1.3 Pa to 13 000 Pa (0.01 to 100 mmHg) and more particularly ranging from 1.3 Pa to 1300 Pa (0.01 to 10 mmHg).

5 The volatile hydrocarbon-based oils may be chosen from hydrocarbon-based oils containing from 8 to 16 carbon atoms, and especially branched C₈-C₁₆ alkanes (also known as isoparaffins), for instance isododecane (also known as 2,2,4,4,6-pentamethylheptane), isodecane, isohexadecane and, for example, the oils sold under the trade names Isopar® or Permethyl®.

Volatile fluoro oils such as nonafluoromethoxybutane or perfluoromethylcyclopentane, and mixtures thereof, may also be used.

10 Volatile oils that may also be used include volatile silicones, for instance volatile linear or cyclic silicone oils, especially those with a viscosity ≤ 8 centistokes (8×10^{-6} m²/s), and especially containing from 2 to 10 silicon atoms and in particular from 2 to 7 silicon atoms, these silicones optionally comprising alkyl or alkoxy groups containing from 1 to 10 carbon atoms. As volatile silicone oils that may be used in the
15 invention, mention may be made especially of dimethicones with a viscosity of 5 and 6 cSt, octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane, heptamethylhexyltrisiloxane, heptamethyloctyltrisiloxane, hexamethyldisiloxane, octamethyltrisiloxane, decamethyltetrasiloxane and dodecamethylpentasiloxane, and mixtures thereof.

20 It is also possible to use a mixture of hydrocarbon-based and silicone volatile oils.

Preferably, the oil(s) are chosen from C₆-C₁₆ alkanes, linear or branched hydrocarbons of mineral or synthetic origin containing more than 16 carbon atoms, non-silicone oils of animal origin, oils of plant origin, fluoro oils, liquid fatty alcohols,
25 liquid fatty esters, non-salified liquid fatty acids, silicone oils, and mixtures of these compounds.

For the purposes of the present invention, the term "fatty alcohol, ester or acid" means an alcohol, ester or acid comprising a linear or branched, saturated or unsaturated alkyl chain, comprising at least 8 carbon atoms, preferably from 8 to 30
30 carbon atoms and more preferentially from 12 to 24 carbon atoms.

Particularly preferably, the oil(s) are chosen from C₆-C₁₆ alkanes, linear or branched hydrocarbons of mineral or synthetic origin containing more than 16 carbon atoms, liquid fatty alcohols, liquid fatty esters, oils of plant origin, especially hydrocarbon-based oils of plant origin, and mixtures of these compounds.

Most particularly preferably, the oil(s) are chosen from C₆-C₁₆ alkanes, linear or branched hydrocarbons of mineral or synthetic origin containing more than 16 carbon atoms, liquid fatty alcohols, oils of plant origin, especially hydrocarbon-based oils of plant origin, and mixtures of these compounds.

5 The oil(s) represent(s) a total content ranging from 8% to 50% by weight, preferably from 10% to 45% by weight and better still from 15% to 40% by weight, relative to the total weight of the composition.

The fatty phase of the composition according to the invention also comprises one or more fatty-phase thickeners.

10 According to the present invention, the term "fatty-phase thickener" means compounds which, by their presence at a content of 0.05% by weight, increase the viscosity of the fatty phase into which they are introduced by at least 20 cps, preferably by at least 50 cps, at 25°C, at atmospheric pressure and at a shear rate of 1 s⁻¹ (the viscosity may be measured using a cone/plate viscometer, a Haake R600 rheometer or
15 the like).

The notion of a fatty-phase thickener is analogous to the notion of a lipophilic thickener.

The fatty-phase thickener(s) used in the composition according to the invention may be chosen from mineral fatty-phase thickeners and organic fatty-phase
20 thickeners, and mixtures of these compounds.

The mineral fatty-phase thickeners that may be used in the composition according to the invention are preferably mineral particles constituted essentially of mineral oxides and/or hydroxides.

25 These particles are preferably insoluble in water at room temperature (25°C). The term "insoluble" means a solubility of less than 0.5% by weight.

Preferably, the number-average primary size of these mineral particles ranges from 0.01 to 500 µm, it preferably ranges from 0.1 to 200 µm and even more preferentially it ranges from 1 to 100 µm.

30 For the purposes of the present invention, the term "primary particle size" means the maximum dimension that it is possible to measure between two diametrically opposite points on an individual particle.

The size of the mineral particles may be determined by transmission electron microscopy or by measuring the specific surface area via the BET method or by laser particle size analysis.

The mineral particles that may be used in accordance with the invention may be in various forms, for example in the form of spheres, needles, flakes or platelets.

In a preferred variant of the invention, the mineral fatty-phase thickener(s) are platelet-shaped particles.

5 The mineral fatty-phase thickener(s) that may be used in the cosmetic composition according to the invention may preferably be chosen from silicas and silicates.

The silicates of the invention may be natural or chemically modified (or synthetic).

10 Silicates correspond to optionally hydrated silica in which some of the silicon atoms are replaced with metal cations such as Al^{3+} , B^{3+} , Fe^{3+} , Ga^{3+} , Be^{2+} , Zn^{2+} , Mg^{2+} , Co^{3+} , Ni^{3+} , Na^{+} , Li^{+} , Ca^{2+} , Cu^{2+} .

More particularly, the silicates that may be used in the context of the invention are chosen from clays of the smectite family such as montmorillonites, hectorites, 15 bentonites, beidellites and saponites, and also of the vermiculite, stevensite and chlorite families.

These clays may be of natural or synthetic origin. Clays that are cosmetically compatible and acceptable with keratin materials are preferably used.

20 The silicate may be chosen from montmorillonite, bentonite, hectorite, attapulgite and sepiolite, and mixtures thereof.

Mention may thus be made of the compounds sold by Laporte under the name Laponite XLG and Laponite XLS.

The silicate(s) are preferably chosen from bentonites and hectorites.

25 The silicates may be modified with a compound chosen from quaternary amines, tertiary amines, amine acetates, imidazolines, amine soaps, fatty sulfates, alkylarylsulfonates and amine oxides, and mixtures thereof.

As silicates that are suitable for use, mention may be made of quaternium-18 bentonites, such as those sold under the names Bentone 3, Bentone 38 and Bentone 38V by Rheox, Tixogel VP by United Catalyst and Claytone 34, Claytone 40 and 30 Claytone XL by Southern Clay; stearylalkonium bentonites, such as those sold under the names Bentone 27 by Rheox, Tixogel LG by United Catalyst and Claytone AF and Claytone APA by Southern Clay; quaternium-18/benzalkonium bentonites, such as those sold under the names Claytone HT and Claytone PS by Southern Clay; quaternium-18 hectorites, such as those sold under the names Bentone Gel DOA,

Bentone Gel ECO5, Bentone Gel EUG, Bentone Gel IPP, Bentone Gel ISD, Bentone Gel SS71, Bentone Gel VS8 and Bentone Gel VS38 by Rheox, and Simagel M and Simagel SI 345 by Biophil.

5 The silicates that may be used in the composition according to the invention may be chosen, in particular, from modified hectorites such as hectorite modified with a C₁₀-C₁₂ fatty acid ammonium chloride, especially distearyldimethylammonium chloride and stearylbenzyltrimethylammonium chloride.

As explained previously, the mineral fatty-phase thickener(s) that may be used in the composition according to the invention may be silicas.

10 The silicas that may be used in the composition according to the invention are preferably fumed silicas.

The fumed silicas may be obtained by high-temperature hydrolysis of a volatile silicon compound in an oxyhydrogen flame, producing a finely divided silica. This process makes it possible in particular to obtain hydrophilic silicas bearing a large number of silanol groups at their surface. Such hydrophilic silicas are sold, for example, under the names Aerosil 130®, Aerosil 200®, Aerosil 255®, Aerosil 300® and Aerosil 380® by the company Degussa, and Cab-O-Sil HS-5®, Cab-O-Sil EH-5®, Cab-O-Sil LM-130®, Cab-O-Sil MS-55® and Cab-O-Sil M-5® by the company Cabot.

20 It is possible to chemically modify the surface of said silicas, via a chemical reaction generating a reduction in the number of silanol groups. It is especially possible to substitute silanol groups with hydrophobic groups: a hydrophobic silica is then obtained.

The hydrophobic groups may be:

25 (a) trimethylsiloxy groups, which are obtained especially by treating fumed silica in the presence of hexamethyldisilazane. Silicas thus treated are known as Silica silylate according to the CTFA (6th Edition, 1995). They are sold, for example, under the references Aerosil R812® by the company Degussa, and Cab-O-Sil TS-530® by the company Cabot;

30 (b) dimethylsiloxy or polydimethylsiloxane groups, which are obtained in particular by treating fumed silica in the presence of polydimethylsiloxane or dimethyldichlorosilane. Silicas thus treated are known as silica dimethyl silylate according to the CTFA (6th Edition, 1995). They are sold, for example, under the

references Aerosil R972® and Aerosil R974® by the company Degussa, and Cab-O-Sil TS-610® and Cab-O-Sil TS-720® by the company Cabot.

Preferably, the fumed silicas that may be used in the composition according to the invention are hydrophilic, such as the product sold under the name Aerosil 200®.

5 Preferably, the mineral fatty-phase thickener(s) are chosen from organophilic clays and hydrophilic fumed silicas, and mixtures thereof.

More preferentially, the mineral fatty-phase thickeners are chosen from hectorites modified with a C₁₀-C₁₂ fatty acid ammonium chloride, especially distearyldimethylammonium chloride and stearylbenzyltrimethylammonium chloride, and hydrophilic fumed silicas such as the hydrophilic silicas sold under the name Aerosil 200®.

Even more preferentially, the mineral fatty-phase thickeners are chosen from hectorites modified with a C₁₀-C₁₂ fatty acid ammonium chloride, especially hectorite modified with distearyldimethylammonium chloride, such as the product sold under the name Bentone 38VCG by Elementis, and the hectorite modified with stearylbenzyltrimethylammonium chloride, such as the product sold under the name Bentone 27V by Elementis.

As explained previously, the fatty-phase thickener(s) that may be used in the composition according to the invention may also be chosen from organic fatty-phase thickeners.

Preferably, the organic fatty-phase thickener(s) are chosen from semi-crystalline polymers, non-silicone polyamides, silicone polyamides, saccharide or polysaccharide monoalkyl or polyalkyl esters, N-acylamino acid amide derivatives, polymers comprising an alkylene and/or styrene block, such as polystearyl acrylates, elastomeric organopolysiloxanes, solid fatty esters, in particular C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acid esters, and mixtures of these compounds. These copolymers may be diblock, triblock or multi-block polymers, radial-block polymers, also known as star copolymers, or alternatively comb polymers.

Among the C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acid esters, mention may be made of mono-, di- or triesters of C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acids and of polyols, more particularly mono-, di- or triesters of C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acids and of glycerol. Use may especially be made of a mixture of these compounds such as a mixture of mono-, di- and triesters of behenic acid and of glycerol.

Most particularly, the organic fatty-phase thickener(s) are chosen from semi-crystalline polymers, non-silicone polyamides, silicone polyamides, polymers comprising an alkylene and/or styrene block, such as polystearyl acrylates, solid fatty esters, in particular C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acid esters, and mixtures of these compounds.

Even more preferentially, the organic fatty-phase thickener(s) are chosen from C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acid esters and mixtures thereof, better still esters of C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acids and of polyols, more particularly mono-, di- or triesters of C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acids and of glycerol.

Preferably, the fatty-phase thickener(s) are chosen from organic thickeners.

The fatty-phase thickener(s) generally represent a total content ranging from 0.05% to 20% by weight, preferably from 0.1% to 15% by weight and better still from 1% to 8% by weight, relative to the total weight of the composition.

The fatty phase of the composition may also comprise any usual liposoluble or lipodispersible additive, for instance other solid or pasty fatty substances such as waxes, fatty alcohols or fatty acids. It may also comprise compounds such as alkylene carbonates, for instance propylene carbonate, which can reinforce the efficacy of certain fatty-phase thickeners such as silicates.

The fatty phase (B) generally represents from 10% to 50% by weight, preferably from 15% to 40% by weight and more preferentially from 20% to 35% by weight relative to the total weight of the composition.

Preferably, the composition according to the invention does not comprise any surfactant. When it does comprise same, the composition according to the invention comprises less than 2% of surfactants.

The composition according to the invention may contain additives conventionally used in the cosmetics field other than those described previously, and chosen from UV-screening agents, resins, fragrances, peptizers, vitamins, amino acids, preserving agents, alkaline agents, acidifying agents, etc.

Needless to say, a person skilled in the art will take care to select the optional additional compounds and/or the amount thereof such that the advantageous properties of the composition used according to the invention are not, or are not substantially, adversely affected by the envisaged addition.

The above adjuvants may generally be present in an amount, for each of them, of between 0 and 20% by weight relative to the total weight of the composition.

Preferably, the composition according to the invention is in the form of a gel, namely a thickened aqueous solution which comprises oily inclusions, such as oily swirls. More preferably, the composition is in the form of a gel with oily inclusions, such as oily swirls.

5 Preferably, the two phases (A) and (B) each have a viscosity of greater than or equal to 0.1 Pa.s, better still ranging from 0.1 to 500 Pa.s, even better still from 0.5 to 300 Pa.s and more preferably from 1 to 200 Pa.s at a temperature of 25°C, at atmospheric pressure and at a shear rate of 1 s^{-1} (measurable, for example, with a Haake RS600 rheometer).

10 Preferably, each of the two phases (A) and (B) has a threshold stress at 25°C ranging from 0.1 to 300 Pa, preferably from 1 to 250 Pa and more preferably from 10 to 200 Pa.

 The threshold stress is determined by scanning under stress at 25°C. An imposed-stress Thermo Haake RS600 rheometer with sandblasted cone-plate geometry
15 is used. The temperature is regulated by a Peltier-effect plate and an anti-evaporation device (solvent trap filled with water for the measurements at 25°C).

 A logarithmic stress elevation from 0.5 to 500 Pa is performed over a period of 3 minutes. Two adjustment lines corresponding to the stationary regimes (solid and liquid behaviours) are plotted on the curve representing the strain as a function of the
20 stress (logarithmic coordinates). The intersection of these two lines gives the value of the stress threshold.

 To measure the stress threshold of each phase, the measurement is taken before mixing the two phases.

 The pH of the aqueous phase of the composition according to the invention
25 generally ranges from 1.5 to 10 and preferably from 2 to 7. Even more preferentially, the pH of the aqueous phase of the composition according to the invention is less than or equal to 5, better still ranging from 1.5 to 4 and even better still from 2 to 3.

 The pH of the composition according to the invention generally ranges from 1.5 to 10 and preferably from 2 to 7. Even more preferentially, the pH of the
30 composition according to the invention is less than or equal to 5, better still ranging from 1.5 to 4 and even better still from 2 to 3.

 Another subject of the present invention is a process for preparing a composition as defined above, which comprises:

a) a step of preparing, separately from each other, phases (A) and (B) as described above, by mixing the constituents of each phase, and then

b) a step of placing phases (A) and (B) in contact without intimate mixing thereof.

5 Preferably, in this process, the step of placing the various phases in contact is performed by means of one or more static mixers.

 Thus, to make the composition according to the invention, the ingredients of the first phase (phase (A)) are mixed separately from the ingredients of the second phase (phase (B)). Each of the phases is prepared in a tank specifically dedicated thereto. Each phase is then introduced separately into a static mixer, i.e. a tube inside
10 which is a three-dimensional structure promoting the appearance of turbulence during the passage of a fluid. The phases are mixed with a static device, i.e. a device that is not driven by a rotary system, thus avoiding dispersion of one of the phases in the other. The blades of the static mixing elements continuously divide the components
15 into layers and stretch them out over the entire cross section of the pipe, which makes it possible to obtain a multi-phase composition according to the invention in which the phases are visually distinct.

 According to a preferred embodiment, the visual appearance of the composition according to the invention is of "marbled" type. This "marbled" visual
20 appearance may be modified as a function of the number of mixing elements used and the amount of first phase and of second phase.

 The present invention also relates to a process for the direct dyeing of keratin fibres, which consists in applying said composition.

 In this process, the composition according to the invention may be applied to
25 wet or dry keratin fibres that have previously optionally been washed with shampoo. Preferably, the composition according to the invention is applied to dry keratin fibres.

 On conclusion of the dyeing operation, the keratin fibres are generally rinsed with water, optionally washed with a shampoo and then rinsed with water, before being dried or left to dry.

30 The composition according to the present invention is applied with a leave-on time that may range from 1 to 30 minutes, preferably from 2 to 20 minutes.

 The examples that follow serve to illustrate the invention without, however, being limiting in nature.

EXAMPLESExample 1:

In the examples that follow, all the amounts are given, unless otherwise indicated, as mass percentages relative to the total weight of the composition.

5

I. Characteristics of the phases

The following aqueous phases, A1 and A2, according to the invention were prepared from the ingredients whose contents are indicated in the table below.

10

Ingredients	A1	A2
Glycine	1	1
Lactic acid	2.2	2.2
Dimethyl sulfone	6	6
Yellow 5 (CI 19140)	0.01	0.01
Orange 4 (CI 15510)	0.2	0.2
Ext. Violet 2 (CI 60730)	0.07	0.07
Acid Red 18 (CI 16255)	0.05	0.05
Acid Black 1 (CI 20470)	0.07	0.07
Phenoxyethanol	0.5	0.5
Benzyl alcohol	5	5
Carbomer (Carbopol 980 from Lubrizol)	2.5	-
Polyacrylamide (and) C ₁₃ -C ₁₄ isoparaffin (and) Laureth-7 (Sepigel 305 from SEPPIC)	2	-
Hydroxyethyl acrylate/sodium acryloyldimethyl taurate copolymer (Sepinov EMT 10b from SEPPIC)	-	4
Dipropylene glycol	2	2
Ethanol	7	7
Water	qs 100	qs 100

The following fatty phase B according to the invention was prepared from the ingredients whose contents are indicated in the table below.

Ingredients	B
Mineral oil	90
Glyceryl dibehenate (and) tribehenin (and) glyceryl behenate	10

II. Protocol for preparing the final compositions

5 First the aqueous phases A1 and A2 are prepared and secondly the fatty phase B. The compositions are then stored and conditioned in a tank.

The fatty phase B was dispersed first in the aqueous phase A1 and secondly in the aqueous phase A2 by means of two static mixing elements of SMX Sulzer type 15 mm in diameter.

10 The two following cosmetic compositions according to the invention are obtained:

- C1 comprising 70% by weight of aqueous phase A1 and 30% by weight of fatty phase B, relative to the total weight of the final composition, and

15 - C2 comprising 70% by weight of aqueous phase A2 and 30% by weight of fatty phase B, relative to the total weight of the final composition.

In each of the compositions C1 and C2, the two phases are visually distinct: pale marbling of fatty phase dispersed in the black aqueous phase is distinguished.

20 III. Characterization methods

The dyeing performance qualities and the staining of phase A1 applied alone (comparative) and of composition C1 according to the invention were evaluated.

25 *in vitro Evaluations*

The dyeing performance qualities are evaluated according to the protocol below:

Compositions A1 and C1 are applied to locks of natural hair containing 90% white hairs, on a hotplate at 40°C (4 g of composition per gram of lock of hair).

After a leave-on time of 15 minutes at 40°C, the locks of hair are rinsed.

A standard shampoo is applied.

5 The colorimetric measurements are taken using a CM-3660d spectrophotometer in the CIELab system (illuminant D65, angle 10°).

The colour variation ΔE is calculated from the following equation:

$$\Delta E^* = \sqrt{(L^* - L_0^*)^2 + (a^* - a_0^*)^2 + (b^* - b_0^*)^2}$$

10 In this equation, the parameters L^* , a^* and b^* represent the values measured on locks of hair after dyeing and the parameters L_0^* , a_0^* and b_0^* represent the values measured on locks of untreated hair. The higher the ΔE value, the better the colour build-up on the keratin fibres.

15 The performance qualities in terms of staining of the scalp are evaluated according to the protocol below:

A standardized amount (50 μ l in an Eppendorf pipette) of composition A1 or C1 is deposited on a polyurethane membrane (scalp model).

20 Leave-on time: 15 minutes at 40°C (on a hotplate).

Rinsing, shampooing.

The colour variation $\Delta E'$ between the dyed membrane and the non-dyed membrane is then evaluated in the CIELab system using standardized photographs and then analysed with colorimetric measurement software.

25 $\Delta E'$ is calculated according to the preceding equation, L^* , a^* and b^* representing here the values measured for the membrane after dyeing and the parameters L_0^* , a_0^* and b_0^* representing the values measured for the untreated membrane. The greater the value of $\Delta E'$, the greater the staining.

30

IV. Results

in vitro Results

	A1 (comparative)	C1 (invention)
Total concentration of dyes of the composition (% by weight)	0.4	0.28
Colour build-up (ΔE)	43.5	40.6
Staining ($\Delta E'$)	13.5	6.2

The results obtained show that composition C1 according to the invention, which comprises 30% less of direct dyes than the comparative composition A1, nevertheless has very good colour build-up, almost equivalent to the colour build-up of the comparative composition.

Furthermore, there is half as much staining of the scalp with the use of composition C1 according to the invention as with the comparative composition.

Example 2:

In the examples that follow, all the amounts are given, unless otherwise indicated, as mass percentages relative to the total weight of the composition.

I. Characteristics of the compositions

The following aqueous compositions A1 and A2 were prepared from the ingredients of which the contents are indicated in the table below.

Ingredients	A1	A2
Hydroxyethylcellulose	0,4	0,33
Lactic acid	2,2	1,79
2-Phenoxyethanol	0,8	0,65
Acrylamide / sodium acrylamido 2-methyl propane sulfonate / hydroxyethylacrylate copolymer in powder	4	3,25
Ext. Violet 2 (CI 60730)	0,09	0,07
Acid Black 1 (CI 20470)	0,07	0,06
Orange 4 (CI 15510)	0,26	0,21
Yellow 5 (CI 19140)	0,05	0,04
Benzyl Alcohol	4,2	3,41
Ethanol	7	5,69
Water	Qs 100	Qs 100

The oily composition (B) was prepared from the ingredients of which the contents are indicated in the table below.

Ingredients	B
Mixture of C ₁₅ -C ₁₉ branched alkanes (EMOGREEN L19 from SEPPIC)	Qs 100
Glyceryl dibehenate (and) tribehenin (and) glyceryl behenate	10

5

II. Protocols

At the time of use:

- 76.5% by weight of the aqueous composition A1 and 23.5% by weight of the oily composition B are mixed together. A composition C1 is obtained;

10 - 94.1% by weight of the aqueous composition A2 and 5.9% by weight of the oily composition B are mixed together. A composition C2 is obtained;

Composition C1 according to the invention is compared with the comparative composition C2.

5 Compositions C1 and C2 have two visually distinct phases: a black phase and a white phase. They have the same contents of ingredients, with the exception of the total content of oils which is of 23.5% by weight relative to the total weight of the composition C1, and of 5.9% by weight relative to the total weight of the composition C2.

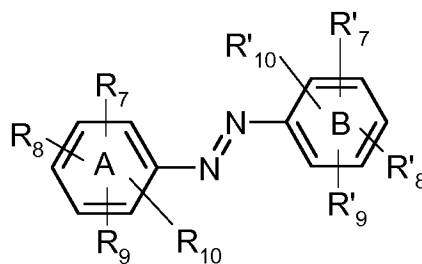
10 Compositions C1 and C2 are respectively applied to two identical locks of natural hair containing 90% grey hairs (one composition per lock).

15 The dyeing performance and the staining of the scalp of the hair dyeing achieved using composition C1 or composition C2 as described above, were evaluated.

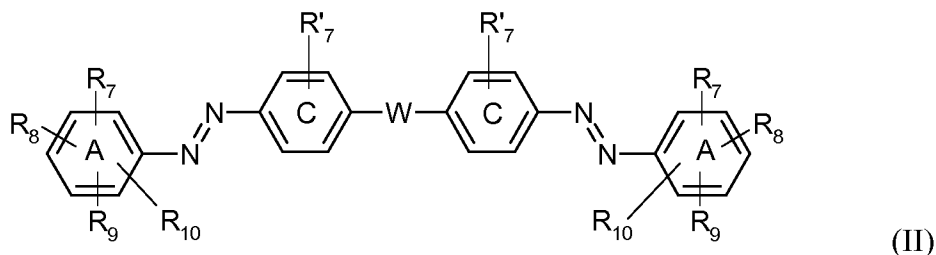
20 The hair dyeing obtained using the inventive composition C1 leads to a staining of the scalp which is significantly less important than the hair dyeing obtained using the comparative composition C2 containing less than 6% by weight of oils relative to the total weight of the composition C2, while presenting equivalent dyeing performances.

CLAIMS

1. Cosmetic composition for the direct dyeing of keratin fibres, comprising:
- a) an aqueous phase (A) comprising:
- at least 0.1% by weight, relative to the total weight of the composition,
 - 5 of one or more direct dyes,
 - one or more aqueous-phase thickeners,
 - one or more organic solvents, and
 - water,
- b) at least 10% by weight, relative to the total weight of the composition, of a
- 10 fatty phase (B) comprising:
- one or more oils, and
 - one or more fatty-phase thickeners,
- it being understood that:
- the two phases (A) and (B) are visually distinct from each other; and
 - 15 - the oil(s) represent(s) a total content ranging from 8% to 50% by weight relative to the total weight of the composition.
2. Composition according to Claim 1, characterized in that the direct dye(s) are chosen from natural or synthetic, cationic, anionic or nonionic direct dyes, and are preferably chosen from anionic direct dyes.
- 20 3. Composition according to Claim 1 or 2, characterized in that the direct dye(s) are anionic direct dyes chosen from those of formulae (I), (II), (III), (IV), (V), (VI), (VII), (VIII), (IX), (X), (XI) and (XII) below, and the mesomeric or tautomeric forms thereof:



(I)

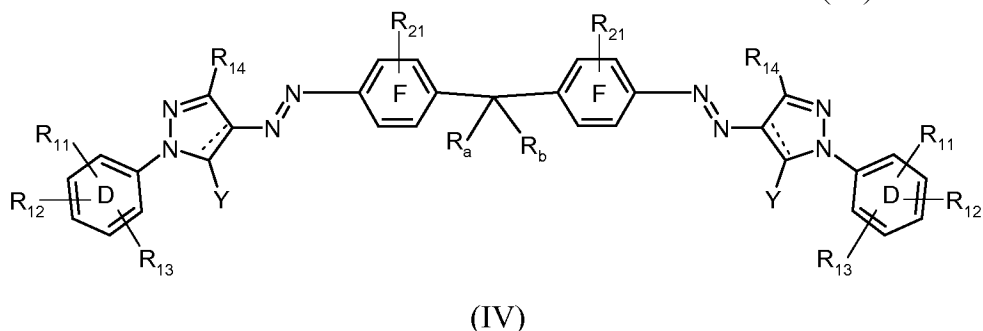
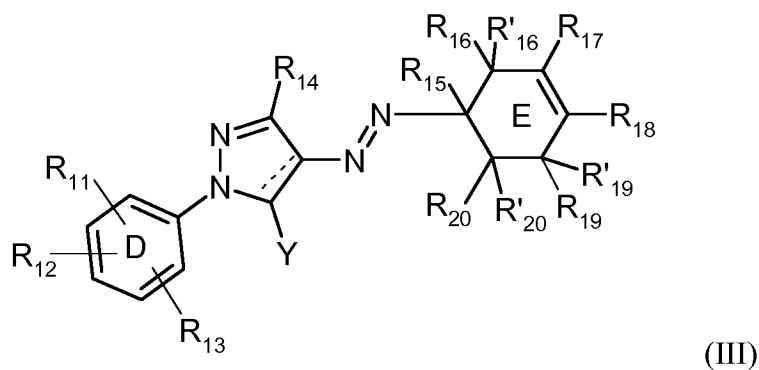


in which formulae (I) and (II):

- R_7 , R_8 , R_9 , R_{10} , R'_7 , R'_8 , R'_9 and R'_{10} , which may be identical or different, represent a hydrogen atom or a group chosen from:
- 5 - alkyl;
 - alkoxy, alkylthio;
 - hydroxyl, mercapto;
 - nitro, nitroso;
 - R° -C(X)-X'-, R° -X'-C(X)-, R° -X'-C(X)-X''- with R° representing a
 - 10 hydrogen atom or an alkyl or aryl group; X, X' and X'', which may be identical or different, representing an oxygen or sulfur atom, or NR with R representing a hydrogen atom or an alkyl group;
 - $(O)_2S(O)^-$, M^+ with M^+ representing a hydrogen atom or a cationic counterion;
 - 15 - $(O)CO^-$, M^+ with M^+ as defined previously;
 - R'' -S(O)₂-, with R'' representing a hydrogen atom or an alkyl, aryl, (di)(alkyl)amino or aryl(alkyl)amino group; preferentially a phenylamino or phenyl group;
 - R''' -S(O)₂-X'- with R''' representing an alkyl or optionally substituted
 - 20 aryl group, X' as defined previously;
 - (di)(alkyl)amino;
 - aryl(alkyl)amino optionally substituted with one or more groups chosen from i) nitro; ii) nitroso; iii) $(O)_2S(O)^-$, M^+ and iv) alkoxy, with M^+ as defined previously;
 - 25 - optionally substituted heteroaryl;
 - cycloalkyl;
 - Ar-N=N- with Ar representing an optionally substituted aryl group;
 - or alternatively two contiguous groups R_7 with R_8 or R_8 with R_9 or R_9 with R_{10} together form a fused benzo group A'; and R'_7 with R'_8 or R'_8 with R'_9 or R'_9 with R'_{10} together form a fused benzo group B'; with A' and B' optionally substituted
 - 30

with one or more groups chosen from i) nitro; ii) nitroso; iii) $(O)_2S(O^-)$, M^+ ; iv) hydroxyl; v) mercapto; vi) (di)(alkyl)amino; vii) $R^\circ-C(X)-X'^-$; viii) $R^\circ-X'-C(X)-$; ix) $R^\circ-X'-C(X)-X''-$; x) $Ar-N=N-$ and xi) optionally substituted aryl(alkyl)amino; with M^+ , R° , X , X' , X'' and Ar as previously defined;

- 5 - W represents a sigma bond σ , an oxygen or sulfur atom, or a divalent radical
 i) $-NR-$ with R as defined previously, or ii) methylene $-C(R_a)(R_b)-$ with R_a and R_b ,
 which may be identical or different, representing a hydrogen atom or an aryl group, or
 alternatively R_a and R_b form, with the carbon atom that bears them, a spiro cycloalkyl;
 it being understood that formulae (I) and (II) comprise at least one sulfonate
 10 radical $(O)_2S(O^-)$, M^+ or one carboxylate radical $(O)CO^-$, M^+ on one of the rings A ,
 A' , B , B' or C ; preferentially sodium sulfonate;



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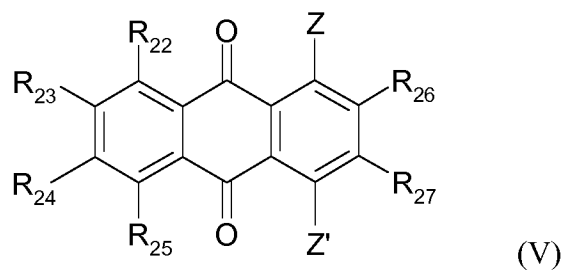
in which formulae (III) and (IV):

- R_{11} , R_{12} and R_{13} , which may be identical or different, represent a hydrogen
 or halogen atom, an alkyl group or $-(O)_2S(O^-)$, M^+ with M^+ as defined previously;
 - R_{14} represents a hydrogen atom, an alkyl group or a group $-C(O)O^-$, M^+
 20 with M^+ as defined previously;
 - R_{15} represents a hydrogen atom;
 - R_{16} represents an oxo group, in which case R'_{16} is absent, or alternatively
 R_{15} with R_{16} together form a double bond;

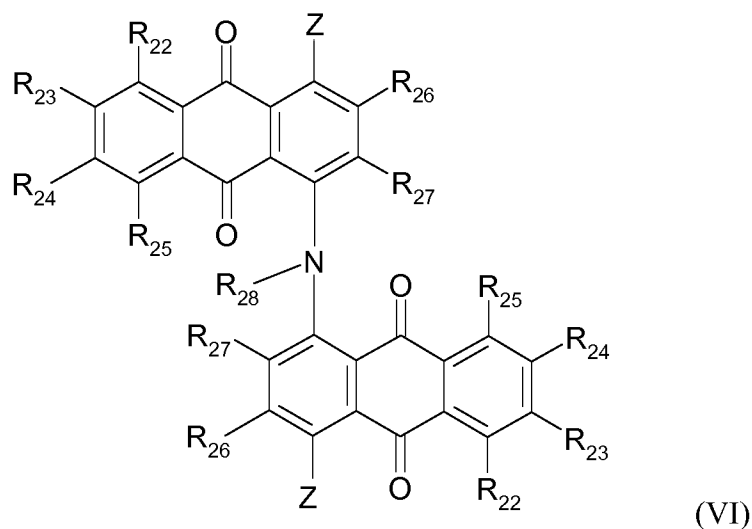
- R_{17} and R_{18} , which may be identical or different, represent a hydrogen atom, or a group chosen from:

- $(O)_2S(O^-)-$, M^+ with M^+ as defined previously;
- $Ar-O-S(O)_2-$ with Ar representing an optionally substituted aryl group, preferentially a phenyl optionally substituted with one or more alkyl groups;
- R_{19} and R_{20} together form either a double bond, or a benzo group D' , which is optionally substituted;
- R'_{16} , R'_{19} and R'_{20} , which may be identical or different, represent a hydrogen atom or an alkyl or hydroxyl group;
- R_{21} represents a hydrogen atom or an alkyl or alkoxy group;
- R_a and R_b , which may be identical or different, are as defined previously;
- Y represents either a hydroxyl group or an oxo group;
- $-----$ represents a single bond when Y is an oxo group; and represents a double bond when Y represents a hydroxyl group;

it being understood that formulae (III) and (IV) comprise at least one sulfonate radical $(O)_2S(O^-)-$, M^+ or one carboxylate radical $C(O)O^-$, M^+ on one of the rings D or E ; preferentially sodium sulfonate;



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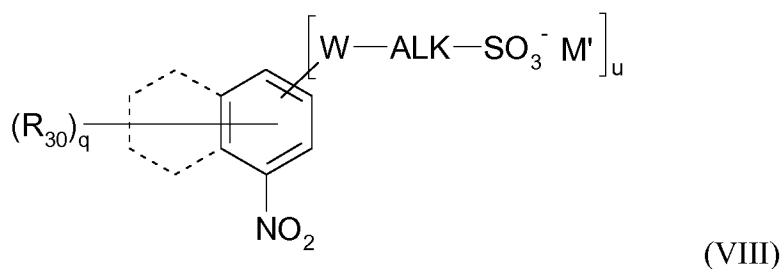
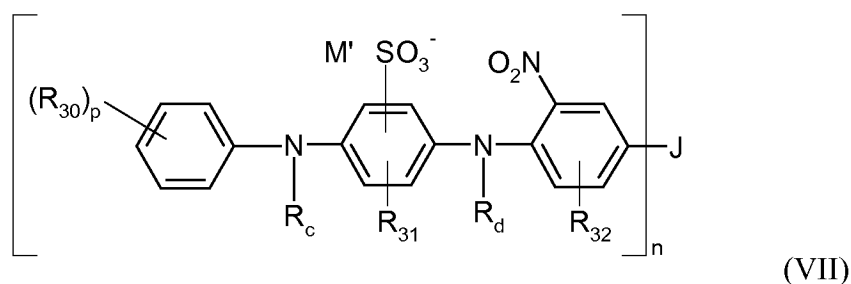


in which formulae (V) and (VI):

- 5 - R_{22} , R_{23} , R_{24} , R_{25} , R_{26} and R_{27} , which may be identical or different, represent
a hydrogen or halogen atom, or a group chosen from:
- alkyl;
 - hydroxyl, mercapto;
 - alkoxy, alkylthio;
 - optionally substituted aryloxy or arylthio;
 - 10 - aryl(alkyl)amino optionally substituted with one or more groups chosen
from alkyl and $(O)_2S(O^-)$ -, M^+ with M^+ as defined previously;
 - (di)(alkyl)amino;
 - (di)(hydroxyalkyl)amino;
 - $(O)_2S(O^-)$ -, M^+ with M^+ as defined previously;
 - 15 - Z' represents a hydrogen atom or a group $NR_{28}R_{29}$ with R_{28} and R_{29} , which
may be identical or different, representing a hydrogen atom or a group chosen from:
 - alkyl;
 - polyhydroxyalkyl such as hydroxyethyl;
 - aryl optionally substituted with one or more groups, more particularly
 - 20 i) alkyl such as methyl, n-dodecyl, n-butyl; ii) $(O)_2S(O^-)$ -, M^+ with M^+ as defined
previously; iii) $R^\circ-C(X)-X'$ -, $R^\circ-X'-C(X)$ -, $R^\circ-X'-C(X)-X''$ - with R° , X , X' and X''
as defined previously;
 - cycloalkyl;

- Z represents a group chosen from hydroxyl and $\text{NR}'_{28}\text{R}'_{29}$ with R'_{28} and R'_{29} , which may be identical or different, representing the same atoms or groups as R_{28} and R_{29} as defined previously;

it being understood that formulae (V) and (VI) comprise at least one sulfonate radical $(\text{O})_2\text{S}(\text{O}^-)-$, M^+ or one carboxylate radical $\text{C}(\text{O})\text{O}^-$, M^+ ; preferentially sodium sulfonate;

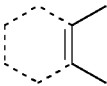


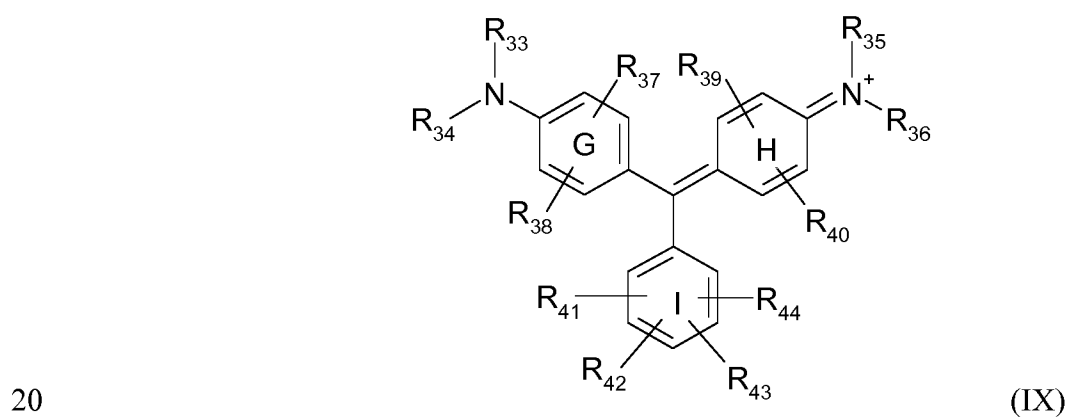
in which formulae (VII) and (VIII):

- R_{30} , R_{31} and R_{32} , which may be identical or different, represent a hydrogen or halogen atom, or a group chosen from:

- alkyl;
- alkoxy optionally substituted with one or more hydroxyl groups,
- alkylthio optionally substituted with one or more hydroxyl groups;
- hydroxyl, mercapto;
- nitro, nitroso;
- polyhaloalkyl;
- $\text{R}^\circ-\text{C}(\text{X})-\text{X}'-$, $\text{R}^\circ-\text{X}'-\text{C}(\text{X})-$, $\text{R}^\circ-\text{X}'-\text{C}(\text{X})-\text{X}''-$ with R° ; X, X' and X'' as
- defined previously;
- $(\text{O})_2\text{S}(\text{O}^-)-$, M^+ with M^+ as defined previously;
- $(\text{O})\text{CO}^-$, M^+ with M^+ as defined previously;
- (di)(alkyl)amino;
- (di)(hydroxyalkyl)amino;

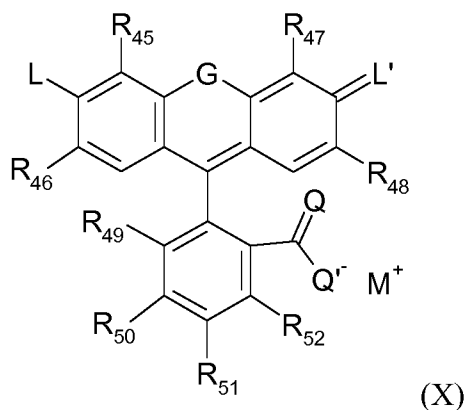
- heterocycloalkyl;
- R_c and R_d , which may be identical or different, represent a hydrogen atom or an alkyl group;
- W is as defined previously;
- 5 - ALK represents a linear or branched divalent C_1 - C_6 alkylene group;
- n is 1 or 2;
- p represents an integer inclusively between 1 and 5;
- q represents an integer inclusively between 1 and 4;
- u is 0 or 1;
- 10 - when n is 1, J represents a nitro or nitroso group;
- when n is 2, J represents an oxygen or sulfur atom, or a divalent radical – $S(O)_m$ – with m representing an integer 1 or 2;
- M' represents a hydrogen atom or a cationic counterion;

- 15 - , which may be present or absent, represents a benzo group optionally substituted with one or more R_{30} groups as defined previously;
- it being understood that formulae (VII) and (VIII) comprise at least one sulfonate radical $(O)_2S(O^-)$ -, M^+ or one carboxylate radical $C(O)O^-$ -, M^+ ;



- in which formula (IX):
- R_{33} , R_{34} , R_{35} and R_{36} , which may be identical or different, represent a hydrogen atom or a group chosen from optionally substituted alkyl or aryl and optionally substituted arylalkyl;
 - 25 - R_{37} , R_{38} , R_{39} , R_{40} , R_{41} , R_{42} , R_{43} and R_{44} , which may be identical or different, represent a hydrogen atom or a group chosen from:

- alkyl;
 - alkoxy, alkylthio;
 - (di)(alkyl)amino;
 - hydroxyl, mercapto;
 - nitro, nitroso;
 - $R^{\circ}-C(X)-X'-$, $R^{\circ}-X'-C(X)-$, $R^{\circ}-X'-C(X)-X''-$ with R° representing a hydrogen atom or an alkyl or aryl group; X, X' and X'', which may be identical or different, representing an oxygen or sulfur atom, or NR with R representing a hydrogen atom or an alkyl group;
 - $(O)_2S(O^-)-$, M^+ with M^+ representing a hydrogen atom or a cationic counterion;
 - $(O)CO^-$, M^+ with M^+ as defined previously;
 - or alternatively two contiguous groups R_{41} with R_{42} or R_{42} with R_{43} or R_{43} with R_{44} together form a fused benzo group: I'; with I' optionally substituted with one or more groups chosen from i) nitro; ii) nitroso; iii) $(O)_2S(O^-)-$, M^+ ; iv) hydroxyl; v) mercapto; vi) (di)(alkyl)amino; vii) $R^{\circ}-C(X)-X'-$; viii) $R^{\circ}-X'-C(X)-$ and ix) $R^{\circ}-X'-C(X)-X''-$; with M^+ , R° , X, X' and X'' as defined previously;
- more particularly, R_{37} to R_{40} represent a hydrogen atom, and R_{41} to R_{44} , which may be identical or different, represent a hydroxyl group or $(O)_2S(O^-)-$, M^+ ; and when R_{43} with R_{44} together form a benzo group, it is preferentially substituted with an $(O)_2S(O^-)-$ group;
- it being understood that at least one of the rings G, H, I or I' comprises at least one sulfonate radical $(O)_2S(O^-)-$ or a carboxylate radical $-C(O)O^-$;



in which formula (X):

- R₄₅, R₄₆, R₄₇ and R₄₈, which may be identical or different, represent a hydrogen or halogen atom;

- R₄₉, R₅₀, R₅₁ and R₅₂, which may be identical or different, represent a hydrogen or halogen atom, or a group chosen from:

- 5 - alkyl;
 - alkoxy, alkylthio;
 - hydroxyl, mercapto;
 - nitro, nitroso;
 - (O)₂S(O⁻)-, M⁺ with M⁺ representing a hydrogen atom or a cationic
 10 counterion;

- (O)CO⁻-, M⁺ with M⁺ as defined previously;

preferably, R₄₉, R₅₀, R₅₁ and R₅₂ represent a hydrogen or halogen atom;

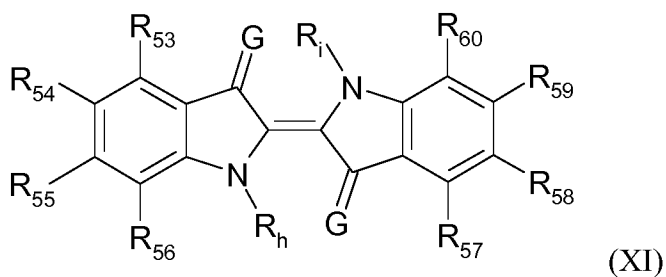
- G represents an oxygen or sulfur atom or a group NR_e with R_e as defined previously;

15 - L represents an alkoxide O⁻, M⁺; a thioalkoxide S⁻, M⁺ or a group NR_f, with R_f representing a hydrogen atom or an alkyl group and M⁺ as defined previously;

- L' represents an oxygen or sulfur atom or an ammonium group: N⁺R_fR_g, with R_f and R_g, which may be identical or different, representing a hydrogen atom or an optionally substituted alkyl or aryl group;

20 - Q and Q', which may be identical or different, represent an oxygen or sulfur atom;

- M⁺ is as defined previously;

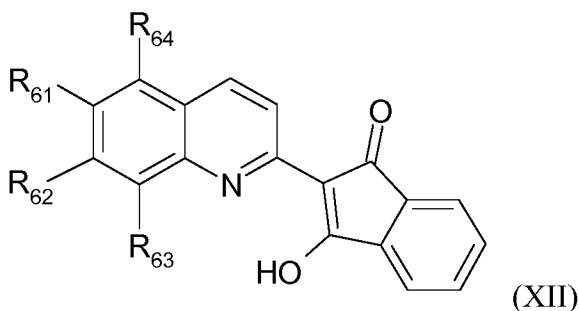


25 in which formula (XI):

- R₅₃, R₅₄, R₅₅, R₅₆, R₅₇, R₅₈, R₅₉ and R₆₀, which may be identical or different, represent a hydrogen atom or group chosen from:

- alkyl;
 - alkoxy, alkylthio;
 30 - hydroxyl, mercapto;

- nitro, nitroso;
 - $R^{\circ}-C(X)-X'-$, $R^{\circ}-X'-C(X)-$, $R^{\circ}-X'-C(X)-X''-$ with R° representing a hydrogen atom or an alkyl or aryl group; X, X' and X'', which may be identical or different, representing an oxygen or sulfur atom, or NR with R representing a hydrogen atom or an alkyl group;
 - $(O)_2S(O^-)-$, M^+ with M^+ representing a hydrogen atom or a cationic counterion;
 - $(O)CO^-$, M^+ with M^+ as defined previously;
 - G represents an oxygen or sulfur atom or a group NR_e with R_e as defined previously;
 - R_i and R_h , which may be identical or different, represent a hydrogen atom or an alkyl group;
- it being understood that formula (XI) comprises at least one sulfonate radical $(O)_2S(O^-)-$, M^+ or one carboxylate radical $-C(O)O^-$, M^+ ;



- in which formula (XII):
- R_{61} represents a hydrogen or halogen atom or an alkyl group;
 - R_{62} , R_{63} , and R_{64} , which may be identical or different, represent a hydrogen atom or a group $(O)_2S(O^-)-$, M^+ with M^+ representing a hydrogen atom or a cationic counterion;
 - or alternatively R_{61} with R_{62} , or R_{61} with R_{64} , together form a benzo group optionally substituted with one or more groups $(O)_2S(O^-)-$, M^+ with M^+ representing a hydrogen atom or a cationic counterion;
- it being understood that formula (XII) comprises at least one sulfonate radical $(O)_2S(O^-)-$.

4. Composition according to any one of the preceding claims, characterized in that the direct dye(s) are chosen from 1,2-dihydroxy-9,10-anthraquinone-3-sulfonic acid, the monosodium salt of 2-[(9,10-dihydro-4-hydroxy-9,10-dioxo-1-

anthracenyl)amino]-5-methylbenzenesulfonic acid, the monosodium salt of 4-[(2-hydroxy-1-naphthyl)azo]benzenesulfonic acid, the disodium salt of 6-hydroxy-5-[(4-sulfophenyl)azo]-2-naphthalenesulfonic acid, the disodium salt of 5-amino-4-hydroxy-3-(phenylazo)-2,7-naphthalenedisulfonic acid, the disodium salt of 1-amino-2-(4'-nitrophenylazo)-7-phenylazo-8-hydroxy-3,6-naphthalenedisulfonic acid, the disodium salt of N-ethyl-N-[4-[[4-[ethyl[3-sulfophenyl)methyl]amino]phenyl](2-sulfophenyl)methylene]-2,5-cyclohexadien-1-ylidene]-3-sulfo

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benzenemethanaminium hydroxide, the disodium salt of 2,2'-[(9,10-dihydro-9,10-dioxo-1,4-anthracenediyl)diimino]bis[5-methyl]benzenesulfonic acid, the trisodium salt of 5-hydroxy-1-(4-sulfophenyl)-4-(4-sulfophenylazo)pyrazole-3-carboxylic acid, sodium 4-[(9,10-dihydro-4-hydroxy-9,10-dioxo-1-anthryl)amino]toluene-3-sulfonate, the trisodium salt of 7-hydroxy-8-[(4-sulfo-1-naphthalenyl)azo]-1,3-naphthalenedisulfonic acid, and a mixture of these compounds.

5. Composition according to any one of the preceding claims, characterized in that the direct dye(s) represent a total content of at least 0.15% by weight and preferably from 0.2% to 5% by weight relative to the total weight of the composition.

6. Composition according to any one of the preceding claims, characterized in that the aqueous-phase thickener(s) are chosen from non-associative thickening polymers bearing sugar units, non-associative thickening polymers without sugar units, associative thickening polymers, and mixtures of these compounds, are preferably chosen from polymers not comprising any sugar units, and more particularly are chosen from associative or non-associative thickening polymers bearing acrylic or methacrylic units, and polymers bearing 2-acrylamido-2-methylpropanesulfonic acid units and/or the salified form thereof.

7. Composition according to any one of the preceding claims, characterized in that the aqueous-phase thickener(s) are chosen from acrylic acid homopolymers or copolymers, in particular acrylic acid homopolymers, homopolymers or copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the salified form thereof, in particular copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the salified form thereof, more particularly copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the salified form thereof and of acrylamide or copolymers of 2-acrylamido-2-methylpropanesulfonic acid and/or the salified form thereof and of hydroxyethyl acrylate, said polymers possibly being crosslinked or non-crosslinked.

8. Composition according to any one of the preceding claims, characterized in that the aqueous-phase thickener(s) represent a total content ranging from 0.05% to 15% by weight, preferably from 0.1% to 10% by weight and better still from 1% to 5% by weight relative to the total weight of the composition.

5 9. Composition according to any one of the preceding claims, characterized in that the organic solvent(s) are chosen from linear or branched monoalcohols containing from 1 to 8 carbon atoms, polyols, polyethylene glycols, aromatic alcohols, and mixtures of these compounds, and are more preferentially chosen from ethanol, propanol, butanol, isopropanol, isobutanol, propylene glycol, dipropylene glycol,
10 isoprene glycol, butylene glycol, glycerol, sorbitol, benzyl alcohol and phenoxyethanol, and mixtures of these compounds, and in particular are chosen from ethanol, dipropylene glycol and benzyl alcohol, and a mixture of these compounds.

 10. Composition according to any one of the preceding claims, characterized in that the organic solvent(s) represent a total content ranging from 0.5% to 20% by
15 weight, preferably from 1% to 15% by weight and better still from 5% to 10% by weight relative to the total weight of the composition.

 11. Composition according to any one of the preceding claims, characterized in that water represents from 20% to 85% by weight, preferably from 30% to 70% by
20 weight and more preferentially from 40% to 60% by weight relative to the total weight of the composition.

 12. Composition according to any one of the preceding claims, characterized in that the oil(s) are chosen from C₆-C₁₆ alkanes, linear or branched hydrocarbons of mineral or synthetic origin containing more than 16 carbon atoms, non-silicone oils of animal origin, oils of plant origin, fluoro oils, liquid fatty alcohols, liquid fatty esters,
25 non-salified liquid fatty acids, silicone oils, and mixtures of these compounds, and are preferably chosen from C₆-C₁₆ alkanes, linear or branched hydrocarbons of mineral or synthetic origin containing more than 16 carbon atoms, liquid fatty alcohols, liquid fatty esters, oils of plant origin, especially hydrocarbon-based oils of plant origin, and mixtures of these compounds, and even more preferentially are chosen from C₆-C₁₆
30 alkanes, linear or branched hydrocarbons of mineral or synthetic origin containing more than 16 carbon atoms, liquid fatty alcohols, oils of plant origin, especially hydrocarbon-based oils of plant origin, and mixtures of these compounds.

13. Composition according to any one of the preceding claims, characterized in that the oil(s) represent a total content ranging from 10% to 45% by weight and better still from 15% to 40% by weight relative to the total weight of the composition.

5 14. Composition according to any one of the preceding claims, characterized in that the fatty-phase thickener(s) are chosen from mineral fatty-phase thickeners, organic fatty-phase thickeners, and mixtures of these compounds, preferably chosen from semi-crystalline polymers, non-silicone polyamides, silicone polyamides, saccharide or polysaccharide monoalkyl or polyalkyl esters, N-acylamino acid amide derivatives, polymers comprising one or more alkylene and/or styrene block, such as
10 polystearyl acrylates, elastomeric organopolysiloxanes, solid fatty esters, in particular C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acid esters, and mixtures of these compounds, and are more preferentially chosen from semi-crystalline polymers, non-silicone polyamides, silicone polyamides, polymers comprising an alkylene and/or styrene block, such as polystearyl acrylates, solid fatty esters, in particular C₈-C₃₀ and
15 preferably C₁₈-C₂₄ fatty acid esters, and mixtures of these compounds.

15 15. Composition according to any one of the preceding claims, characterized in that the fatty-phase thickener(s) are chosen from C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acid esters and mixtures thereof, better still mono-, di- or triesters of C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acids and of polyols, more particularly mono-, di- or triesters
20 of C₈-C₃₀ and preferably C₁₈-C₂₄ fatty acids and of glycerol.

16. Composition according to any one of the preceding claims, characterized in that the fatty-phase thickener(s) represent a total content ranging from 0.05% to 20% by weight, preferably from 0.1% to 15% by weight and better still from 1% to 8% by weight relative to the total weight of the composition.

25 17. Composition according to any one of the preceding claims, characterized in that the fatty phase (B) represents from 10% to 50% by weight, preferably from 15% to 40% by weight and more preferentially from 20% to 35% by weight relative to the total weight of the composition.

30 18. Composition according to any one of the preceding claims, characterized in that the two phases (A) and (B) each have a viscosity of greater than or equal to 0.1 Pa.s, better still ranging from 0.1 to 500 Pa.s, even better still from 0.5 to 300 Pa.s, more preferably from 1 to 200 Pa.s, at a temperature of 25°C, atmospheric pressure and at a shear rate of 1s⁻¹.

19. Process for preparing a composition according to any one of the preceding claims, comprising:

5 a) a step of preparing, separately from each other, phases (A) and (B) as defined in any one of Claims 1 to 18, by mixing the constituents of each phase, and then

b) a step of placing phases (A) and (B) in contact without intimate mixing thereof.

20. Process according to Claim 19, characterized in that the step of placing in contact is performed by means of one or more static mixers.

10 21. Process for the direct dyeing of keratin fibres, comprising a step of applying to the keratin fibres a composition as defined in any one of Claims 1 to 18.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/084406

A. CLASSIFICATION OF SUBJECT MATTER		
INV.	A61Q5/06 A61K8/37	A61K8/03 A61K8/81 A61K8/34 A61K8/31
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) 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, 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	WO 2010/084055 A2 (UNILEVER PLC [GB]; UNILEVER NV [NL]; UNILEVER HINDUSTAN [IN]; IVANOVA) 29 July 2010 (2010-07-29) example 2	1-21
X	FR 3 012 331 A1 (OREAL [FR]) 1 May 2015 (2015-05-01) example; page 22, line 10 - page 23, line 20	1-21
A	EP 2 022 467 A1 (KPSS KAO GMBH [DE]) 11 February 2009 (2009-02-11) paragraph [0025]; examples 3,4	1-21
☐ 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 22 March 2018		Date of mailing of the international search report 05/04/2018
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 Werner, Stefan

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2017/084406

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010084055	A2	29-07-2010	NONE
FR 3012331	A1	01-05-2015	NONE
EP 2022467	A1	11-02-2009	EP 2022467 A1 11-02-2009
			EP 2025318 A2 18-02-2009
			US 2009041699 A1 12-02-2009