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Cosmetic composition comprising at least one silicone/ acrylate copolymer and at least one nonionic polymer with a vinylactam unit

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(56) Related Art
WO 99/04750
WO 97/33554

ABSTRACT

**COSMETIC COMPOSITION COMPRISING AT LEAST ONE
SILICONE/ACRYLATE COPOLYMER AND AT LEAST ONE NONIONIC
POLYMER WITH A VINYLACTAM UNIT**

The invention relates to a cosmetic composition comprising at least one specific silicone/acrylate copolymer and at least one nonionic polymer comprising at least one vinylactam unit. The invention also relates to a cosmetic process, in particular a process for fixing and/or holding the hairstyle by using the said composition, as well as to the use of this composition for the manufacture of a cosmetic formulation intended in particular for holding and/or shaping the hairstyle.

AUSTRALIA
Patents Act 1990

COMPLETE SPECIFICATION
STANDARD PATENT

Applicant(s):

L'ORÉAL

Invention Title:

COSMETIC COMPOSITION COMPRISING AT LEAST ONE
SILICONE/ACRYLATE COPOLYMER AND AT LEAST ONE NONIONIC
POLYMER WITH A VINYLACTAM UNIT

The following statement is a full description of this
invention, including the best method of performing it known to
me/us:

**COSMETIC COMPOSITION COMPRISING AT LEAST ONE
SILICONE/ACRYLATE COPOLYMER AND AT LEAST ONE NONIONIC
POLYMER WITH A VINYLACTAM UNIT**

5 The invention relates to a cosmetic composition comprising at least one specific silicone/acrylate copolymer and at least one nonionic polymer comprising at least one vinylactam unit. The invention also relates to a cosmetic process, in
10 particular a process for fixing and/or holding the hairstyle by using the said composition, as well as to the use of this composition for the manufacture of a cosmetic formulation intended in particular for holding and/or shaping the hairstyle.

15 Among hair products, in particular those intended for shaping and/or holding the hairstyle which are most widely available on the cosmetics market, there may be distinguished spray compositions essentially consisting of a solution, usually an
20 alcoholic or aqueous solution, and one or more materials.

 When the compositions are intended for fixing and/or holding the hairstyle, these materials are generally polymeric resins, whose function is to form
25 welds between the hairs, and these are also known as fixing materials, mixed with various cosmetic adjuvants. These compositions are generally packaged either in a suitable aerosol container placed under

pressure with the aid of a propellant, or in a pump-dispenser bottle.

Hair gels and hair mousses which are generally applied to wet hair before blow-drying or
5 setting the hair are also known. A drying or blow-drying operation is then carried out in order to shape and fix the hairstyle. These gels or mousses can also contain polymeric resins.

However, these hair compositions often have
10 the drawback of adversely affecting the cosmetic properties of the hair. Thus, the hair may become coarse and difficult to disentangle, it may lose its pleasant feel and appearance or it may lack body. Styling compositions are thus sought which afford good
15 cosmetic properties, in particular in terms of disentangling, softness and feel.

In addition, these hair compositions also have the major drawback of giving rise to a powdering effect. For the purposes of the present invention, the
20 term "powdering" means the aptitude of the material obtained, on drying of the hair composition, to form a powder after it has been applied to the hair. Needless to say, the powder falls on the user's shoulders and clothing, or it attaches to the comb or brush, and this
25 is a detrimental factor.

There is thus a need to find cosmetic compositions, in particular for styling the hair, which do not have the set of drawbacks mentioned above, and

which in particular fix the hairstyle well, while at the same time affording good cosmetic properties, without a powdering effect.

The Applicant has discovered, surprisingly and unexpectedly, that when specific silicone/acrylate copolymers are combined with certain specific polymers, it is possible to obtain cosmetic compositions which satisfy the requirements expressed above.

According to the present invention, there is provided cosmetic composition including, in a cosmetically acceptable medium, at least one silicone/acrylate copolymer and at least one nonionic polymer including at least one vinyl lactam unit, the silicone/acrylate copolymer being obtained by radical-mediated polymerisation of at least one ethylenically unsaturated monomer (a) in the presence of at least one silicone derivative (b) having at least one oxyalkylene groups.

Another subject of the invention relates to a cosmetic hair process, in particular a process for fixing and/or holding the hairstyle using the said composition.

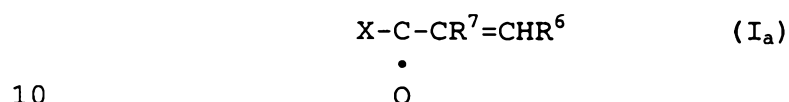
Yet another subject of the invention relates to the use of this composition for the manufacture of a cosmetic hair formulation which is intended in particular for holding and/or shaping the hairstyle.

The silicone/acrylate copolymers particularly targeted by the present invention are those described in International patent application WO 99/04750. In



particular, the copolymer sold by BASF under the name Luviflex Silk is preferred. This polymer is a grafted copolymer of tert-butyl acrylate/methacrylic acid and silicone copolyol.

- 5 Preferably, the monomer (a) corresponds to formula (I_a):



in which:

- X is chosen from the group comprising OH, OM, OR⁸, NH₂, NHR⁸ and N(R⁸)₂;
- M is a cation chosen from Na⁺, K⁺, Mg⁺⁺, NH₄⁺, alkylammonium, dialkylammonium, trialkylammonium and tetraalkylammonium;
- the radicals R⁸ may be identical or different and are chosen from the group comprising hydrogen, linear or branched C₁ to C₄₀ alkyl groups, mono- or polyhydroxylated C₁ to C₄₀ alkyl groups, optionally substituted with one or more alkoxy, amino or carboxyl groups, hydroxylated polyethers, and N,N-dimethylaminoethyl, 2-hydroxyethyl, 2-methoxyethyl, 2-ethoxyethyl, hydroxypropyl, methoxypropyl and ethoxypropyl groups;
- R⁷ and R⁶ are chosen, independently of each other, from the group comprising hydrogen, linear or branched C₁ to C₈ alkyl groups, methoxy, ethoxy,

2-hydroxyethoxy, 2-methoxyethoxy and 2-ethoxyethyl groups, and CN, COOH and COOM groups.

In particular, the monomers (a) of formula (Ia) are acrylic acid and its salts, esters or amides.

5 The esters may be derivatives of linear C_1 to C_{40} alkyls, of branched C_3 to C_{40} alkyls or of C_3 to C_{40} carboxylic alcohols, of polyfunctional alcohols containing 2 to 8 hydroxyls, such as ethylene glycol, hexylene glycol, glycerol and 1,2,6-hexanetriol, of
10 amino alcohols or of alcohol ethers such as methoxymethanol and ethoxyethanol, or polyalkylene glycols.

The monomers (a) of formula (Ia) may also be chosen from N,N-dialkylaminoalkyl acrylates and
15 methacrylates and N-dialkylaminoalkyl-acrylamides and -methacrylamides, the amide group possibly being unsubstituted, N-alkyl- or N-alkylamino-monosubstituted or N,N-dialkylamino-disubstituted, the alkyl or
alkylamino groups being derived from linear C_1 to C_{40} or
20 branched C_3 to C_{40} carboxylic units.

The monomers (a) of formula (Ia) which can be used may also be substituted compounds derived from acrylic acid or its salts, esters or amides. Mention may be made, for example, of methacrylic acid,
25 ethacrylic acid and 3-cyanoacrylic acid.

Other monomers (a) which are particularly suitable are C_1 to C_{40} vinyl and allyl esters, linear C_3 to C_{40} carboxylic acids or C_3 to C_{40} carboxycyclic acids,

vinyl or allyl halides, vinyl lactams, preferably vinylpyrrolidone and vinylcaprolactam, heterocyclic compounds substituted with vinyl or allyl groups, preferably vinylpyridine, vinylloxazoline and allylpyridine, N-vinylimidazoles, diallylamines, vinylidene chloride, carbon-based unsaturated compounds, such as styrene or isoprene, and acrylic or methacrylic acid derivatives quaternized with epichlorohydrin.

10 Other monomers (a) which may finally be mentioned are N-vinylimidazoles, diallylamines, vinylidene chloride, carbon-based unsaturated compounds such as styrene and isoprene, and acrylic or methacrylic acid derivatives quaternized with
15 epichlorohydrin.

Monomers (a) which are most particularly preferred are acrylic, methacrylic and ethacrylic acid; methyl, ethyl, propyl, n-butyl, isobutyl, t-butyl, 2-ethylhexyl and decyl acrylate; methyl, ethyl, propyl, n-butyl, isobutyl, t-butyl, 2-ethylhexyl and decyl ethacrylate; 2,3-dihydroxypropyl acrylate; 2,3-dihydroxypropyl methacrylate; 2-dihydroxyethyl acrylate; hydroxypropyl acrylate; 2-hydroxyethyl methacrylate; 2-hydroxyethyl ethacrylate; 2-methoxyethyl acrylate; 2-ethoxyethyl methacrylate; 2-ethoxyethyl ethacrylate; hydroxypropyl methacrylate; glyceryl monoacrylate; glyceryl

monomethacrylate; polyalkylene glycol (meth)acrylates,
 unsaturated sulphonic acids, acrylamide,
 methacrylamide, ethacrylamide, N,N-dimethylacrylamide,
 N-ethylacrylamide, N-ethylmethacrylamide, 1-vinyl-
 5 imidazole, N,N-dimethylaminoethyl (meth)acrylate,
 maleic acid, fumaric acid, maleic anhydride and its
 monoesters, crotonic acid, itaconic acid, vinyl ethers,
 vinylformamide, vinylamine, vinylpyridine,
 vinylimidazole, vinylfuran, styrene, styryl sulphonate
 10 and allyl alcohol, and mixtures thereof.

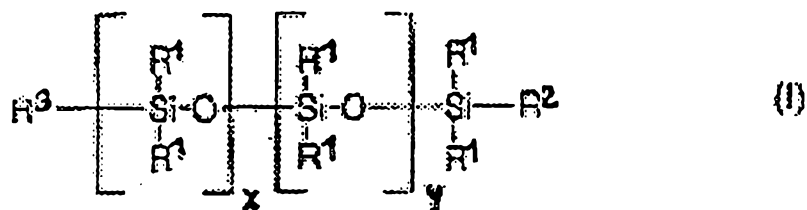
The monomer (a) can also contain silicon or
 fluorine atoms or alternatively thio groups. The
 monomers (a) can be neutralized if they contain acid
 groups, this being carried out before or after the
 15 polymerization, and partially or totally, so as to
 adjust the solubility or the degree of dispersion in
 water to the desired level. Agents serving for the
 neutralization which may be used are mineral bases,
 such as sodium carbonate, and organic bases such as
 20 amino alcohols, for instance alkanolamines such as
 methanolamine, 2-amino-2-methyl-1-propanol or
 triethanolamine, and diamines such as lysine.

The monomers (a) can also be quaternized when
 they contain a basic nitrogen atom. If they contain at
 25 least two ethylenic double bonds, the monomers (a) can
 be partially crosslinked.

The silicone derivatives (b) are in
 particular the compounds known under the INCI name of

dimethicone copolyols or silicone surfactants. Mention may be made of those sold under the brand names Abil[®] by Goldschmidt, Alkasil[®] by Rhône-Poulenc, silicone Polyol Copolymer[®] by Genesee, Besil[®] by Wacker, Silwet[®] by OSI or Dow Corning 190[®] by Dow Corning.

Among the preferred monomers (b) are those which have the formula I below:

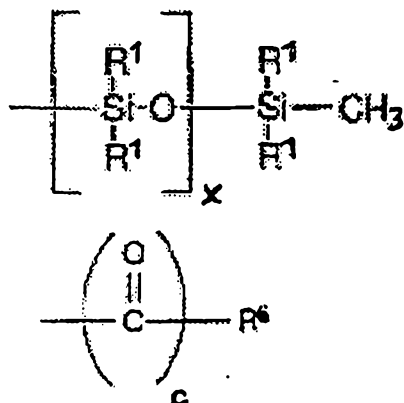


in which formula (I):

- 10 - R² is chosen from CH₃ and the group



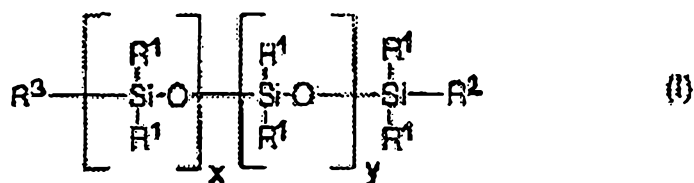
- R³ is chosen from CH₃ and the group R²,
- R⁴ is chosen from hydrogen, CH₃ and the groups



- R^6 is an organic C_1 to C_{40} group which can contain amino, carboxyl or sulphonated groups, and if $c=0$, R_6 is the anion of an inorganic acid;
 - the radicals R^1 may be identical or different and are
- 5 chosen from C_1 to C_{20} aliphatic hydrocarbons, C_3 to C_{20} aliphatic or cycloaliphatic hydrocarbons, and the groups R^5 corresponding to the formula below:

[lacuna]

- Among the preferred silicone derivatives (b)
- 10 are those which have the formula I below:



in which formula (I):

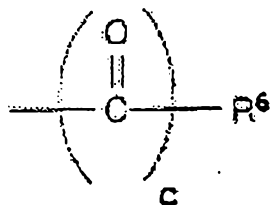
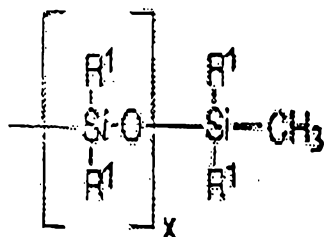
- R^2 is chosen from CH_3 and the group

15



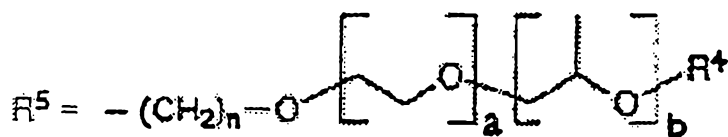
- R^3 is chosen from CH_3 and the group R^2 ,
- R^4 is chosen from hydrogen, CH_3 and the

20 groups



- R^6 is a C_1 to C_{40} organic group which can contain amino, carboxyl or sulphonate groups, and if
5 $c=0$, R^6 is the anion of an inorganic acid;

- the radicals R^1 may be identical or different and are chosen from C_1 to C_{20} aliphatic hydrocarbons, C_3 to C_{20} aliphatic or cycloaliphatic hydrocarbons, and the groups R^5 corresponding to the
10 formula below:



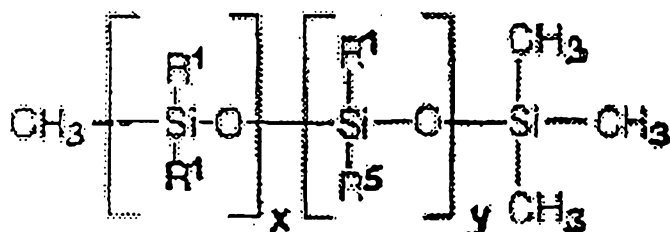
- n is an integer between 1 and 6,
- x and y are integers chosen such that the molecular weight of the polysiloxane is between 300 and
15 30,000,
- a and b are integers between 0 and 50, and
- c is 0 or 1.

R^1 is preferably chosen from methyl, ethyl, propyl, butyl, isobutyl, pentyl, isopentyl, hexyl, octyl, decyl, dodecyl and octadecyl groups, cycloaliphatic radicals, in particular cyclohexyl groups, aromatic groups, in particular phenyl or naphthyl groups, and mixtures of aromatic and aliphatic radicals, such as benzyl and phenylethyl, and also tolyl and xylyl.

The preferred radicals R^4 are those having the formula $-(CO)c-R^6$, R^6 being an alkyl, cycloalkyl or aryl containing 1 to 4 carbon atoms which can contain additional groups such as NH_2 , $COOH$ and/or SO_3H .

The preferred radicals R^6 are those for which $c=0$, which are phosphates or sulphates.

The silicone derivatives (b) which are particularly preferred are those having the general formula below:



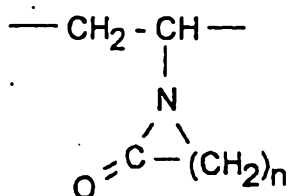
The relative proportion of derivative (b) in the copolymer is generally from 0.1% to 50% and preferably from 1% to 20% by weight.

The preferred copolymers are the water-soluble silicone/acrylate copolymers or those whose dispersibility in water is such that, in a

water/ethanol mixture dosed at 50/50 by volume, they are soluble in a proportion of greater than 0.1 g/l and preferably greater than 0.2 g/l.

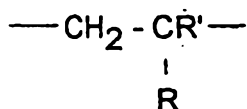
The composition advantageously comprises, as
 5 a relative percentage with respect to the weight of the composition, from 0.1% to 20% of silicone/acrylate copolymer, and more preferably from 0.5% to 10% of this polymer.

According to the invention, the polymers
 10 containing vinyl lactam units are those which comprise units of formula



in which n is independently 3, 4 or 5.

The polymers containing vinyl lactam units are
 15 advantageously copolymers or can also comprise units of formula



in which

R independently represents an acyloxy radical, the
 20 alkoxy group of the carbalkoxy radical possibly being substituted with at least one hydroxyl radical or an aryl radical, in particular phenyl, optionally substituted with at least one alkyl radical, and

R' represents a hydrogen atom or an alkyl radical.

According to the invention, the term "alkyl" preferably means linear or branched C₁-C₁₀ alkyl radicals, more preferably C₁-C₄ alkyl radicals, in particular methyl, ethyl, n-propyl, isopropyl, n-butyl and t-butyl radicals.

According to the invention, the term "acyl" preferably means acyl radicals in which the alkyl residue is a linear or branched C₁-C₁₀ alkyl, in particular acetyl or propionyl radicals.

The polymers containing vinyl lactam units according to the invention are described in particular in US patents 3 770 683, 3 929 735, 4 521 504, 5 158 762 and 5 506 315 and in patent applications WO 94/121148, WO 96/06592 and WO 96/10593. They can be in pulverulent form or in the form of a solution or suspension.

Among the polymers containing vinyl lactam units which are useful according to the invention, mention will be made more particularly of polyvinylpyrrolidones, polyvinylcaprolactams, polyvinylpyrrolidone/vinyl acetate copolymers and polyvinylpyrrolidone/vinyl acetate/vinyl propionate terpolymers (sold in particular under the name Luviskol VAP 343 by the company BASF).

The number-average molecular mass of the polymer containing vinyl lactam units is generally greater than about 5000, preferably between 10,000 and

1,000,000 approximately and more preferably between 10,000 and 100,000 approximately.

The polymer containing vinyl lactam units can be used in dissolved form or in the form of dispersions of solid polymer particles.

The composition preferably comprises between 0.1% and 10% of nonionic polymer containing a vinyl lactam unit, and even more preferably between 0.2% and 5%, as relative percentages by weight.

The cosmetically acceptable medium preferably consists of water or one or more cosmetically acceptable solvents such as alcohols or water/solvent(s) mixtures, the solvents preferably being C₁-C₄ alcohols.

Among these alcohols which may be mentioned are ethanol and isopropanol. Ethanol is particularly preferred.

The composition of the invention can also contain at least one additive chosen from anionic, cationic, nonionic and amphoteric surfactants, fragrances, screening agents, preserving agents, proteins, vitamins, polymers other than those of the invention, plant, mineral or synthetic oils and any other additive conventionally used in cosmetic compositions.

Needless to say, a person skilled in the art will take care to select the optional compound(s) to be added to the composition according to the invention

such that the advantageous properties intrinsically associated with the composition in accordance with the invention are not, or are not substantially, adversely affected by the addition envisaged.

5 These compositions may be packaged in various forms, in particular in pump-dispenser bottles or in aerosol containers, in order to ensure application of the composition in vaporized form or in the form of a mousse. Such packaging forms are indicated, for
10 example, when it is desired to obtain a spray, a lacquer or a mousse for fixing or treating hair. The compositions in accordance with the invention can also be in the form of creams, gels, emulsions, lotions or waxes.

15 When the composition according to the invention is packaged in aerosol form in order to obtain a lacquer or a mousse, it comprises at least one propellant which may be chosen from volatile hydrocarbons such as n-butane, propane, isobutane and
20 pentane, a halogenated hydrocarbon and mixtures thereof. Carbon dioxide, nitrous oxide, dimethyl ether (DME), nitrogen or compressed air can also be used as propellant. Mixtures of propellants can also be used. Dimethyl ether is preferably used.

25 The propellant is advantageously present in a concentration of between 5% and 90% by weight relative to the total weight of the composition in the aerosol

device, and more particularly at a concentration of between 10% and 60%.

The compositions in accordance with the invention can be applied to the skin, the nails, the lips, the hair, the eyebrows and the eyelashes.

The compositions in accordance with the invention are particularly suitable for dry or wet hair, as styling products.

The invention will be illustrated more fully with the aid of the non-limiting examples which follow.

All the percentages are relative percentages by weight with respect to the total weight of the composition, and a.m. means active material.

EXAMPLE:

The following composition is prepared in a pump-dispenser bottle:

	Luviflex Silk (BASF) *	3% A.M.
	Luviskol plus **	2% A.M.
20	AMP	qs pH = 7
	Ethanol	qs 100 g

* silicone/acrylate copolymer (t-butyl-acrylate/methacrylic acid/PDMS polyether)

** polyvinylcaprolactam

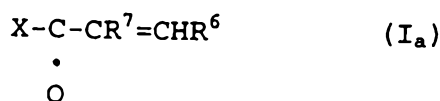
This composition is applied by spraying it onto a lock of European chestnut-brown hair. Good hold and very good cosmetic qualities are obtained.

It is to be understood that, if any prior art publication is referred to herein, such reference does not constitute an admission that the publication forms a part of the common general knowledge in the art, in Australia or in any other country.

For the purposes of this specification it will be clearly understood that the word "comprising" means "including but not limited to", and that the word "comprises" has a corresponding meaning.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Cosmetic composition including, in a cosmetically acceptable medium, at least one silicone/acrylate
5 copolymer and at least one nonionic polymer including at least one vinyl lactam unit, the silicone/acrylate copolymer being obtained by radical-mediated polymerisation of at least one ethylenically unsaturated monomer (a) in the presence of at least one silicone
10 derivative (b) having at least one oxyalkylene groups.
2. Composition according to claim 1, in which the monomer (a) corresponds to formula (I_a):



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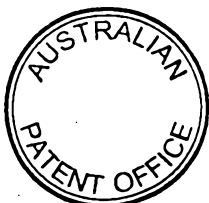
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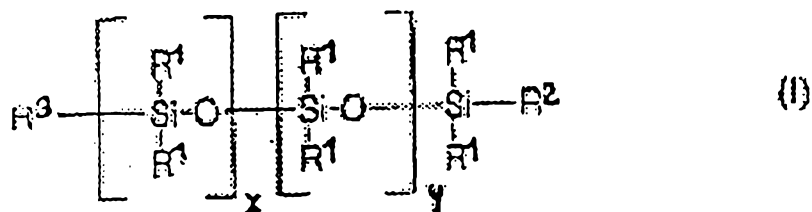
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- in which
- X is chosen from OH, OM, OR⁸, NH₂, NHR⁸ or N(R⁸)₂;
- M is a cation chosen from Na⁺, K⁺, Mg⁺⁺, NH⁴⁺, alkylammonium, dialkylammonium, trialkylammonium or tetraalkylammonium;
- the radicals R⁸ may be identical or different and are chosen from hydrogen, linear or branched C₁ to C₄₀ alkyl groups, mono- or polyhydroxylated C₁ to C₄₀ alkyl groups, optionally substituted with one or more alkoxy, amino or carboxyl groups, hydroxylated polyethers, N, N-dimethylaminoethyl, 2-hydroxyethyl, 2-methoxyethyl, 2-ethoxyethyl, hydroxypropyl, methoxypropyl or ethoxypropyl groups;
- R⁷ and R⁶ are chosen, independently of each other, from hydrogen, linear or branched C₁ to C₈ alkyl groups, methoxy, ethoxy, 2-hydroxyethoxy, 2-methoxyethoxy or 2-ethoxyethyl groups, or CN, COOH and COOM groups.



3. Cosmetic composition according to claim 1 or 2, in which the silicone derivative (b) corresponds to the formula (I) below:



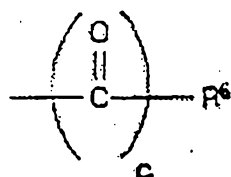
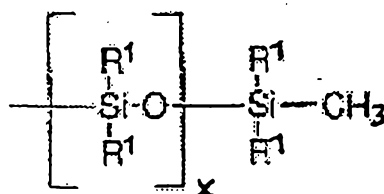
in which in formula (I):

- R² is chosen from CH₃ or the group



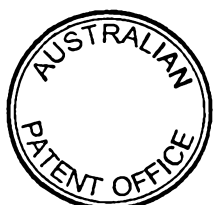
- R³ is chosen from CH₃ or the group R²,

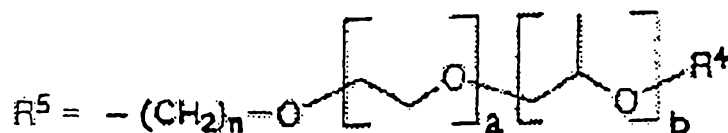
- R⁴ is chosen from hydrogen, CH₃ or the groups



- R⁶ is an organic C₁ to C₄₀ group which can contain amino, carboxyl or sulphonate groups, and if c=0, R₆ is an anion of an inorganic acid;

- the radicals R¹ may be identical or different and are chosen from C₁ to C₂₀ aliphatic hydrocarbons, C₃ to C₂₀ aliphatic or cycloaliphatic hydrocarbons, or the groups R⁵ corresponding to the formula below:





5

- n is an integer between 1 and 6;
- x and y are integers chosen such that the molecular weight of the polysiloxane is between 300 and 30,000;
- a and b are integers between 0 and 50; and
- c is 0 or 1.

10

4. Composition according to any preceding claim, in which the monomer (a) is chosen from C₁ to C₄₀ vinyl or allyl esters, linear C₃ to C₄₀ carboxylic acids or C₃ to C₄₀ carboxylic acids, vinyl or allyl halides, vinyl lactams, heterocyclic compounds substituted with vinyl or allyl groups, carbon-based unsaturated compounds, or acrylic or methacrylic acid derivatives quaternised with epichlorohydrin.

15

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5. Composition according to claim 4, in which the vinyl lactam is vinylpyrrolidone or vinylcaprolactam.

25

6. Composition according to claim 4 or 5, in which the vinyl or allyl groups are vinylpyridine, vinylloxazoline, allylpyridine, N-vinylimidazoles, diallylamines or vinylidene chloride.

7. Composition according to any one of claims 4 to 6, in which the carbon based unsaturated compound is styrene or isoprene.

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8. Composition according to any one of claims 1 to 3, in which the monomer (a) is chosen from acrylic, methacrylic or ethacrylic acid; methyl, ethyl, propyl, n-butyl, isobutyl, t-butyl, 2-ethylhexyl or decyl acrylate; methyl, ethyl, propyl, n-butyl, isobutyl, t-butyl, 2-ethylhexyl or decyl methacrylate; methyl, ethyl, propyl, n-butyl, isobutyl, t-butyl, 2-ethylhexyl or decyl ethacrylate; 2,3-dihydroxypropyl acrylate; 2,3-dihydroxypropyl methacrylate; 2-dihydroxyethyl acrylate;

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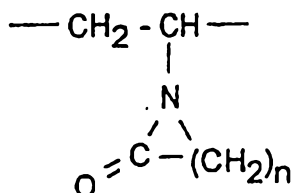
hydroxypropyl acrylate; 2-hydroxyethyl methacrylate; 2-hydroxyethyl ethacrylate; 2-methoxyethyl acrylate; 2-ethoxyethyl methacrylate; 2-ethoxyethyl ethacrylate; hydroxypropyl methacrylate; glyceryl monoacrylate; glyceryl monomethacrylate; polyalkylene acids, acrylamide, methacrylamide, ethacrylamide, N,N-dimethylacrylamide, N-ethylacrylamide, N-ethymethacrylamide, 1-vinylimidazole, N,N-dimethylaminoethyl (meth)acrylate, maleic acid, furmaric acid, maleic anhydride or its monoesters, crotonic acid, itaconic acid, vinyl ethers, vinylformamide, vinylamine, vinylpyridine, vinylimidazole, vinylfuran, styrene, styryl sulphonate and allyl alcohol or mixtures thereof.

9. Composition according to any one of the preceding claims, in which the silicone derivatives (b) are chosen from dimethicone copolyols and silicone surfactants.

10. Composition according to any one of the preceding claims, further including as a relative percentage by weight, from 0.1% to 20% of silicone/acrylate copolymer.

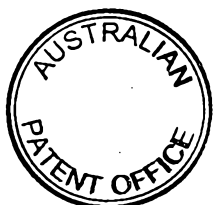
11. Composition according to claim 10, in which the relative percentage by weight is from 0.5% to 10% of the silicone/acrylate copolymer.

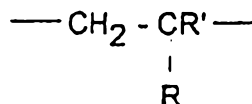
12. Composition according to any one of the preceding claims, in which the polymer containing vinyl lactam units includes units of the formula:



in which n is independently 3, 4 or 5.

13. Composition according to any one of claims 1 to 11, in which the polymers containing vinyl lactam units are copolymers also comprising units of formula:





5 in which

R independently represents an acyloxy radical, the alkoxy group of the carbalkoxy radical possibly being substituted with at least one hydroxyl radical, or an aryl radical, in particular phenyl, optionally substituted with
10 at least one alkyl radical, and

R' independently represents a hydrogen atom or an alkyl radical.

14. Composition according to any one of claims 1 to 11, in which the polymers containing vinyl lactam units are
15 chosen from polyvinylpyrrolidones, polyvinylcaprolactams, polyvinylpyrrolidone/vinyl acetate copolymers, or polyvinylpyrrolidone/vinyl acetate/vinyl propionate terpolymers.

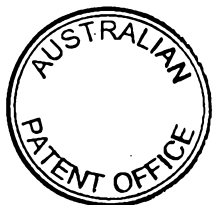
15. Composition according to any one of the preceding
20 claims, in which the nonionic polymer containing vinyl lactam units is present in the composition at a relative concentration by weight of between 0.1% and 10%.

16. Composition according to claim 15, in which the nonionic polymer is present in the composition at a
25 relative concentration by weight of between 0.2% and 5%.

17. Composition according to any one of the preceding claims, further including at least one additive chosen from anionic, cationic, nonionic or amphoteric surfactants, fragrances, preserving agents, proteins,
30 vitamins, screening agents, polymers other than those of the invention, or mineral, plant or synthetic oils.

18. Composition according to any preceding claim, in which the (b) at least one nonionic polymer including at least one vinyl lactam unit is present in an amount
35 effective to impart powdering resistance to the composition.

19. Process for holding or shaping a hairstyle,



including applying an effective amount of a composition in accordance with any one of claims 1 to 18.

20. Use of a composition according to any one of claims 1 to 18, for the manufacture of a cosmetic product.

5 21. Use of a composition according to claim 20, in which the cosmetic product is a hair product.

22. A method of manufacturing a cosmetic product using a composition in accordance with any one of claim 1 to 18.

10 23. A method according to claim 22, in which the cosmetic product is a hair product.

24. A cosmetic composition according to any one of claims 1 to 18 for use in connection with the skin, the nails, lips, hair, eyebrows or eyelashes of a person.

15 25. Cosmetic composition substantially as hereinbefore described with reference to any one of the foregoing examples.

26. Process for holding or shaping a hairstyle substantially as hereinbefore described with reference to
20 any one of the foregoing examples.

27. A method of manufacturing a cosmetic product substantially as hereinbefore described with reference to any one of the foregoing examples.

25 Dated this 23rd day of March 2002

L'OREAL

By their Patent Attorneys

GRIFFITH HACK

Fellows Institute of Patent and

30 Trade Mark Attorneys of Australia

