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COSMETIC COMPOSITIONS WITH IMPROVED TRANSFER RESISTANCE

The invention relates to cosmetic make-up compositions for application to lips and skin.

Cosmetic compositions are generally defined as compositions suitable for application to the human body. Cosmetic compositions such as creams and lotions are used to moisturise skin and keep it in a smooth, supple condition. Pigmented cosmetic compositions such as make-up, for example, concealer, blusher, eye shadow, foundation, lipstick, etc. are used to colour or tint the skin and lips. Since adding colour is one of the most important reasons for wearing cosmetics, colour-containing cosmetics need to be very carefully formulated to provide maximum wear and effect.

One of the long-standing problems with make-up, particularly lipstick, is the tendency of the cosmetic to blot or transfer from the skin onto other surfaces such as glassware, silverware, clothing, etc. This not only causes soiling of these surfaces, but forces the cosmetic wearer, especially lipstick user, to reapply cosmetic at fairly short intervals in order to maintain its effect, especially to keep the lips coloured.

Known cosmetics, particularly lipsticks, contain varying amounts of oil, wax and powder. However, all these hitherto-known compositions suffer from the disadvantages mentioned above.

It has now been found that incorporation of a volatile solvent and a silicone resin into such compositions mitigates the previously-mentioned disadvantages.

This invention therefore provides a cosmetic composition comprising oil, wax and powder, and

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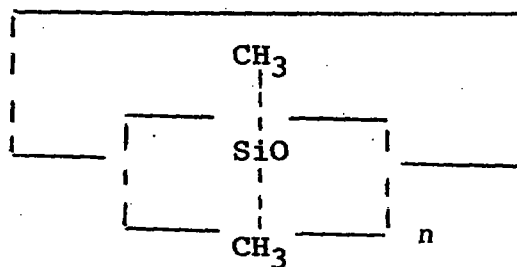
optionally other excipients, characterised in that the oil component contains 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C and the wax component contains 0.1-15% silicone resin, based on the total weight of the composition.

In particular, this invention provides a cosmetic composition comprising:

- a) 1-70% of a volatile solvent
- b) 0.1-15% silicone resin
- c) 10-45% wax
- d) 5-50% powder
- e) 1-30% oil

The composition of the invention provides a cosmetic composition which exhibits superior transfer resistance when compared with hitherto-known cosmetics.

In component (a), the term "volatile" means that the solvent has a measurable vapour pressure. The volatile solvents of the invention generally have a low viscosity, ranging from about 0.5 to 20 centipoise at 25°C. Volatile solvents suitable for use in the compositions of the invention include volatile, low-viscosity silicone liquids such as cyclic silicones having the formula:

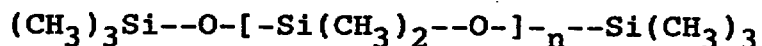


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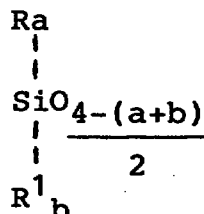


wherein n is an integer of from 3-7. Volatile linear polydimethylsiloxanes are also suitable and generally have from about 3 to 9 silicon atoms and are of the formula:



wherein n is an integer of from 1-7. These silicones are available from various sources including Dow Corning Corporation, General Electric, etc. The Dow Corning cyclic silicones are sold under the tradenames Dow Corning 244, 245, 344, 345 and 200 fluids. These fluids comprise octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, hexamethyldisiloxane, or mixtures thereof. Also suitable as the volatile solvent are various $\text{C}_8\text{--C}_{20}$ isoparaffins such as C_{12} isoparaffin made by The Permethyl Corporation having the registered trade mark Permethyl (R) 99A, or a C_{12} isoparaffin (isododecane) having the trade name Permethyl 99A, both distributed for The Permethyl Corporation by Presperse Inc., South Plainfield, New Jersey, U.S.A. Various C_{16} isoparaffins are commercially available, such as isohexadecane (having the registered trade mark Permethyl (R)) are also suitable. It is generally preferred that the volatile solvent component be a mixture of volatile silicones and $\text{C}_{8\text{--}20}$ isoparaffins. A ratio of from 10:1 to 1:10, respectively, is suitable. Preferably, the formulation comprises 35-60% of the volatile solvent. Therefore, a preferred formulation of the invention comprises 35-60% of a volatile solvent itself comprising a 10:1 to 1:10 ratio of cyclic silicones and $\text{C}_{8\text{--}20}$ isoparaffins.

The silicone resins of the invention are silicone ester waxes preferably chosen from those disclosed in US patent specification no. 4 725 658 (herein incorporated by reference) and having the following general formula:



wherein R is hydrogen or an organic radical, R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a+b has an average value of from about 1.0 to about 33.0 with the proviso that there is present at least one R¹ radical. The silicone ester waxes generally have a melting point of from about 40 to 90°C. The R radicals in the foregoing formula can be any substituted or unsubstituted organic radicals, for example, alkyl radicals such as methyl, ethyl, propyl, hexyl, octyl, decyl, cyclohexyl, cycloheptyl, and the like; aryl radicals such as phenyl, tolyl, xylyl, naphthyl, and the like; aralkyl radicals such as phenylethyl, benzyl, and the like; or any of the foregoing wherein one or more hydrogen atoms is replaced with, for example, a halogen, cyano, amino, or the like. Most preferably, all of the R radicals are methyl or a mixture of methyl and phenyl. Preferably, the R¹ radical is an ester having from 12-18 carbon atoms. Preferably, the R¹ radical is a C₁₆ ester. Preferably, the formulation of the invention comprises 3-10% of a silicone resin. Examples of suitable silicone ester waxes are those such as lauryl trimethylolpropane siloxy silicate and isostearyl trimethylolpropane siloxy silicate.

The waxes or wax-like materials (also known in the art as "waxes") of the invention generally have a melting point in the range of from 35-120°C. Waxes in



this category include synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax, spermaceti, stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax, bayberry wax, or mixtures thereof. Preferably, the formulation of the invention comprises about 10-30% wax, more preferably as a mixture of waxes.

The powder component of the invention is generally a dry, particulate matter having a particle size of 0.02-50 microns. The particulate matter may be coloured or non-coloured (for example, white) and, in particular, pigments are considered as "powder" for the purposes of this invention.

Suitable non-pigmented powders include bismuth oxychloride, titanated mica, fumed silica, spherical silica beads, polymethylmethacrylate beads, micronized teflon, boron nitride, acrylate polymers, aluminum silicate, aluminum starch octenylsuccinate, bentonite, calcium silicate, cellulose, chalk, corn starch, distomaceous earth, fuller's earth, glyceryl starch, hectorite, hydrated silica, kaolin, magnesium aluminum silicate, magnesium carbonate, magnesium hydroxide, magnesium oxide, magnesium silicate, magnesium trisilicate, maltodextrin, montmorillonite, microcrystalline cellulose, rice starch, silica, talc, mica, titanium dioxide, zinc laurate, zinc myristate, zinc neodecanoate, zinc rosinate, zinc stearate, polyethylene, alumina, attapulgit, calcium carbonate, calcium silicate, dextran, kaolin, nylon, silica silylate, silk powder, serecite, soy flour, tin oxide, titanium hydroxide, trimagnesium phosphate, walnut



shell powder, or mixtures thereof. The above-mentioned powders may be surface-treated with lecithin, amino acids, mineral oil, silicone oil or various other agents, either alone or in combination, which coat the powder surface and render the particles hydrophobic in nature.

The powder component may also comprise various organic and inorganic pigments. The organic pigments are generally various aromatic types including azo, indigoid, triphenylmethane, anthraquinone, and zanthine dyes which are designated as D&C and FD&C blues, browns, greens, oranges, reds, yellows, etc. Inorganic pigments generally consist of insoluble metallic salts of certified colour additives, referred to as the Lakes or iron oxides.

The percentage of pigments used in the powder component will depend upon the type of cosmetic being formulated. Blushers, eyeshadows, lipsticks and similar cosmetics will contain higher percentages of pigment in the powder phase, usually ranging from 5-50% of the total cosmetic composition. Generally, the powder:pigment ratio ranges from 1:20 to 20:1. Preferably, the invention comprises 10-30% of a powder component, especially wherein the non-pigment powder component comprises about 10-20% of the total composition and the pigment component comprises 1-10% of the total composition.

The composition of the invention also contains an oil, preferably comprising a mixture of low viscosity and high viscosity oils.

Suitable low viscosity oils have a viscosity of 5 to 100 centipoise at 25°C, and are generally esters having the structure RCO-OR' wherein RCO represents



a carboxylic acid radical and wherein OR' is an alcohol residue. Examples of these low viscosity oils include isotridecyl isononanoate, PEG-4 diheptanoate, where PEG-4 is a polymer of ethylene oxide of formula $H(OCH_2CH_2)_nOH$ wherein n has an average value of 4, isostearyl neopentanoate, tridecyl neopentanoate, cetyl octanoate, cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, coco-dicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, dioctyl malate ester, octyldodecanol, or mixtures of octyldodecanol, acetylated lanolin alcohol, cetyl acetate, isododecanol, polyglyceryl-3-diisostearate, or mixtures of any of these.

Suitable high viscosity surface oils generally have a viscosity of 200-1,000,000 centipoise at 25°C, preferably a viscosity of 100,000-250,000 centipoise at 25°C. Surface oils include castor oil, lanolin and lanolin derivatives, triisocetyl citrate, sorbitan sesquioleate, C_{10-18} triglycerides, caprylic/capric/triglycerides, coconut oil, corn oil, cottonseed oil, glyceryl triacetyl hydroxystearate, glyceryl triacetyl ricinoleate, glyceryl trioctanoate, hydrogenated castor oil, linseed oil, mink oil, olive oil, palm oil, illipe butter, rapeseed oil, soybean oil, sunflower seed oil, tallow, tricaprin, trihydroxystearin, triisostearin, trilaurin, trilinolein, trimyristin, triolein, tripalmitin, tristearin, walnut oil, wheat germ oil, cholesterol, or mixtures thereof.

The ratio of low viscosity to high viscosity oils in the oil phase is preferably in the range of from 1:15 to 15:1, more preferably 1:10 to 10:1,



respectively. The preferred formulation of the invention comprises 1-20% of a mixture of low viscosity and high viscosity surface oils.

Especially preferred compositions are those comprising:

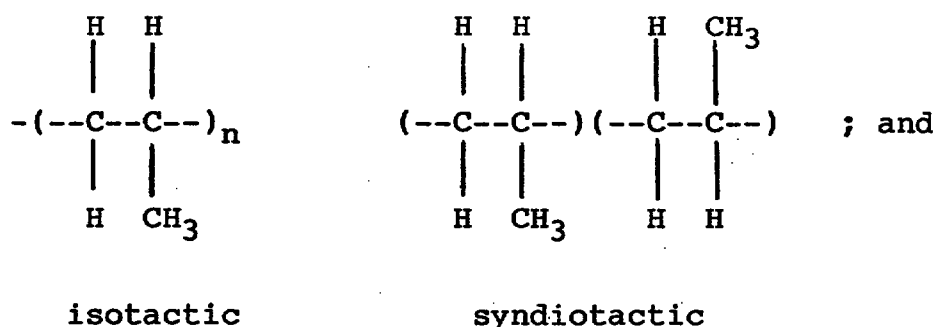
- a) 35-60% of the volatile solvent;
- b) 3-10% of the silicone ester wax which is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate, or a mixture thereof;
- c) 10-30% of the wax;
- d) 10-30% of the powder component comprised, by weight of the total composition, of 10-20% non-pigment powder and 1-10% pigment powder; and
- e) 5-20% of a mixture of low viscosity and high viscosity surface oils.

Other ingredients may also be added to the above composition including various types of amorphous or atactic polypropylene, and preservatives or antioxidants, and the like.

Preferably, amorphous or atactic polypropylene is incorporated in the range of from about 0.1-10%. Suitable polypropylenes are atactic polypropylenes having about 50-100% atactic content, 0.1-15% crystallinity, and a molecular weight of about 1,000-10,000 wherein the term "molecular weight" means average number molecular weight; the term "atactic content" means that the polypropylene polymeric structure is random or without orientation, as opposed to isotactic or syndiotactic polymers which exhibit specific orientation and structural regularity. Isotactic and syndiotactic polymers, due to their



structural regularity, can easily cross-link to form a crystalline network whereas the structural irregularity of atactic polymers precludes appreciable polymeric cross linking:



the term "crystallinity" refers to the degree of cross-linking of the polypropylene polymer. Crystallinity is directly proportional to the degree of polymeric cross-linking, and polymers which exhibit extensive cross-linking are highly crystalline in nature.

Preferably, the atactic polypropylene is selected from the group consisting of an atactic polypropylene having a softening point of 20°C and a molecular weight of 2,000; an atactic polypropylene having a softening point of 135°C and a molecular weight of 5,600; and an atactic polypropylene having a softening point of 150°C and a molecular weight of about 4,400.

Suitable preservatives include those such as the parabens, butylated hydroxy toluene (BHT), butylated hydroxy anisole (BHA), and the like. Generally, 0.01-5% preservative is suitable.

The present invention further provides a cosmetic such as a concealer, blusher, eye shadow, foundation or lipstick, which cosmetic comprises a composition as hereinbefore described in association with a suitable



receptacle therefor.

The present invention further provides a method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic as hereinbefore described.

The present invention further provides a process for preparing a cosmetic composition as hereinbefore described, which process comprises bringing into intimate physical admixture

- (a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
- (b) 0.1-15% silicone resin;
- (c) 10-45% of a wax having a melting point in the range of from 35 to 120°C;
- (d) 5-50% powder; and
- (e) 1-30% oil

The cosmetic compositions according to the invention provide a novel finish which exhibits superior transfer resistance when compared with hitherto-known cosmetic compositions. The term "^{superior}transfer resistance" means that when the cosmetic composition is applied to skin or lips it exhibits from 10-100%, preferably 30-100%, improvement in transfer resistance when compared with a hitherto-known formulation. When the cosmetic is a lipstick, transfer resistance can be measured by the "Kiss Test" as described in Example 4.

The invention will be further illustrated by the



following examples.

EXAMPLE 1

A transfer resistant lipstick composition with shine was made according to the following formula:

	w.w%	
	(a)	(b)
Synthetic wax	6.00	6.60
Ceresin	4.00	4.00
Paraffin	3.00	3.00
Isododecane	10.00	10.00
Cetyl acetate:acetylated lanolin alcohol (90:10)	5.00	5.00
Methyl paraben	.30	.30
Propyl paraben	.10	.10
BHA	.10	.10
Red #7 Calcium Lake	4.00	3.00
Yellow 5 Aluminum Lake	3.00	-----
Titanium dioxide/mica	5.00	-----
Titanium dioxide/mica/iron oxide	3.00	-----
Bismuth oxychloride	10.00	15.00
Cyclomethicone	41.50	40.40
Isostearyl trimethylolpropane siloxy silicate	5.00	5.00

EXAMPLE 2

A transfer resistant lipstick composition was made according to the following formula:

	w.w%
Cococaprylate/caprate	2.70
Cetyl acetate:acetylated lanolin alcohol	1.00
Isostearyltrimethylol propane siloxysilicate	7.00
Methylparaben	0.30
Propylparaben	0.10
BHA	0.10
Synthetic wax	6.60
Ceresin wax	4.00
Paraffin wax	3.00
Ozokerite wax	1.00
Illipe butter	0.20
Octyldodecanol, trilaurin phospholipids, cholesterol, glycosphingolipids	0.50
Bismuth oxychloride	9.00
Dimethicone treated mica	2.50
Mica/titanium dioxide	2.50



Cyclomethicone	41.40
Isododecanol	9.00
Polypropylene (atactic)	0.10
Lanolin oil	3.50
Trioctyldodecyl citrate	2.00
pigment solids*	3.50
*D&C red 7 Calcium Lake	0.90
D&C red 7 Barium Lake	2.30
FD&C yellow 6 Aluminum Lake	0.30

The lipstick formulations of Examples 1 and 2 were made by grinding a portion of the powder (non-pigmented and pigmented) ingredients with some of the volatile solvent and silicone ester wax. Next, the waxes and oils were added with heating. The remainder of the powder component was then added. The mixture was then stirred before pouring into moulds and left to cool.

EXAMPLE 3

A transfer resistant eyeshadow, blusher and concealer were made according to the following compositions:

	w/w%		
	eyeshadow	blusher	concealer
Cococaprylate/caprates	2.700	2.700	2.700
Cetyl acetate/acetylated lanolin alcohol	1.000	1.000	1.000
Isostearyl trimethylol propanesiloxysilicate	7.000	7.000	7.000
Synthetic wax	6.600	6.600	6.600
Ceresin wax	4.000	4.000	4.000
Paraffin wax	3.000	3.000	3.000
Ozokerite	1.000	1.000	1.000
Octyldodecanol/trilaurin phospholipid/cholesterol/glycosphingolipids	0.500	0.500	0.500
Illipe butter	0.200	0.200	0.200
Polypropylene (atactic)	0.100	0.100	0.100
Methyl paraben	0.300	0.300	0.300
Propyl paraben	0.100	0.100	0.100
BHA	0.100	0.100	0.100
Lanolin oil	3.500	3.500	3.500
D&C red 7 calcium lake	-----	2.100	-----



DF&C yellow 5 aluminum lake	-----	0.800	-----
Red iron oxide	2.100	-----	2.100
Yellow iron oxide	0.800	-----	0.800
Black iron oxide	0.500	0.500	0.100
Titanium dioxide	0.100	0.100	0.100
Bismuth oxychloride	3.000	3.000	3.000
Titanium dioxide/mica	9.00	9.000	9.000
Cyclomethicone	41.400	41.400	41.400
Mico/dimethicone	2.000	2.000	2.000
Isododecane	9.000	9.000	9.000
Trioctyldodecyl citrate	2.000	2.000	2.000

The above cosmetic compositions were made by first mixing all the dry ingredients. The waxes and oils were added with heating. The volatile solvent and silicone ester wax were next added, followed by the remaining ingredients. The mixture was stirred before being poured into the appropriate moulds and allowed to cool.

EXAMPLE 4

Two groups of thirty nine panelists were asked to compare a lipstick formulation of the invention according to Example 2 hereof ("A") with a known, commercially-available lipstick formulation ("B"), having a formulation as specified at the end of this example.

Formulations A and B

<u>A</u>		<u>B</u>
1-70% volatile solvent		-*
0.1-1.5% silicone resin		-
10-45% wax	10-45%	(candelilla wax (carnauba wax (ceresin (paraffin
5-50% powder	5-50%	(mica (titanium dioxide (reds and yellow
1-30% oil	1-30%*	(octyl palmitate (lanolin oil (castor oil (cetyl acetate

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(*: With the balance of the formulation made up by a higher % of natural oils, in the absence of volatile solvent).

The first group of thirty nine panelists were asked to use lipstick "A" for one week in place of their current lipstick brand. The second group of thirty nine panelists were asked to use formulation "B" for one week in place of their current lipstick brand. The panelists were then asked a series of questions as follows:

Did the lipstick product bleed?

	<u>A</u>	<u>B</u>
Yes	1	8
No	38	31

If so, after how long?

	<u>A</u>	<u>B</u>
1/2 hour	-	1
1 hour	-	1
2 hours	-	4
Other (3-5 hours)	1	2

Did the lipstick leave a rim on coffee cups or cigarettes?

	<u>A</u>	<u>B</u>
Yes	15	36
No	24	3

Would you consider this test lipstick to be "long wearing"?

	<u>A</u>	<u>B</u>
Yes	34	36
No	5	21

KISS TEST

Panelists were asked to apply the lipstick, wait 5 minutes, then kiss their hand. The panelists were then asked if the lipstick "left hardly a trace" of colour on their hand. They reported as follows:

	<u>A</u>	<u>B</u>
Yes	34	6
No	5	33



The above results show that the lipstick formulation of the invention exhibited superior transfer resistance when compared to a commercial lipstick formulation. Approximately 87% of the panelists agreed that lipstick "A" left hardly a trace of colour on their hand whereas only 15% of panelists agreed that sample "B" (a traditional lipstick) left hardly a trace of colour on their hand. The degree of improvement seen with sample A is approximately 72%.

Further details of Formulation B

	w/w%
Candelilla wax	1-5
Carnauba	1-5
Ceresin	1-5
Paraffin	1-5
Propylene glycol ricinoleate	1-10
Octyl hydroxystearate	5-15
PVP hexadecene copolymer	1-5
UV absorbers	0.5-5
Cetyl acetate:acetylated lanolin alcohol (90:10)	10-15
Octyl palmitate	5-10
Lanolin oil	5-25
Preservatives	0.1-3
Castor oil	5-25
Acrylates copolymer	0.01-5
Pigments	3-20
Fragrance	0.1-1

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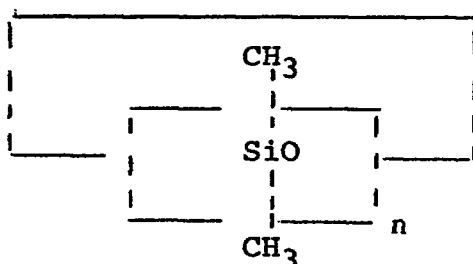
CLAIMS

1. A cosmetic composition comprising oil, wax and powder, and optionally other excipients, characterised in that the oil component contains 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C and the wax component contains 0.1-15% silicone resin, based on the total weight of the composition.

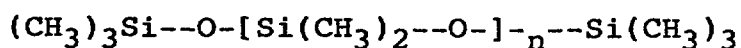
2. A cosmetic composition according to claim 1 comprising:

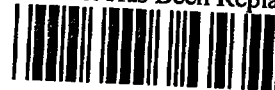
- a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
- b) 0.1-15% silicone resin;
- c) 10-45% of a wax having a melting point in the range of from 35 to 120°C;
- d) 5-50% powder; and
- e) 1-30% oil.

3. A composition according to any preceding claim wherein the volatile solvent is a cyclic silicone having the formula:



wherein n is an integer of from 3-7; or a volatile linear polydimethylsiloxane having from about 3 to 9 silicon atoms and of the general formula:



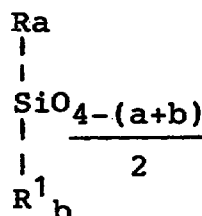


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wherein n is an integer of from 1-7; or a C₈-C₂₀ isoparaffin, or mixtures thereof.

4. A composition according to any preceding claim wherein the volatile solvent is itself comprised of a 10:1 to 1:10 ratio of cyclic silicones and C₈-20 isoparaffins.

5. A composition according to any preceding claim wherein the silicone resin is a silicone ester wax of the formula:



wherein R is hydrogen or an organic radical, R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a+b has an average value substantially in the range of from 1.0 to 3.0 with the proviso that there is present at least on R¹ radical.

6. A composition according to any preceding claim wherein the silicone ester wax has a melting point of from about 40 to 90°C.

7. A composition according to claim 6 wherein the R¹ radical is an ester having from 12-18 carbon atoms.

8. A composition according to any preceding claim wherein the silicone resin is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate.

9. A composition according to any preceding claim wherein the wax is synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter shellac wax, spermaceti,



* C L M S *



stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax or bayberry wax, or a mixture thereof.

10. A composition according to any preceding claim wherein the powder comprises a dry particulate matter having a particle size in the range of from 0.02-50 microns.

11. A composition according to any preceding claim wherein the ratio of non-pigment powder to pigment in the powder is in the range of from 1:20 to 20:1, respectively.

12. A composition according to any preceding claim wherein the oil comprises a low viscosity oil, a high viscosity oil or a mixture thereof wherein the low viscosity oil has a viscosity in the range of from 5 to 100 centipoise at 25°C and wherein the high viscosity oil has a viscosity in the range of from 200-1,000,000 centipoise at 25°C.

13. A composition according to any preceding claim wherein the oil comprises a mixture of low viscosity and high viscosity oils in the ratio ranging from 1:15 to 15:1, respectively.

14. A composition according to any preceding claim wherein the oil incorporates a low viscosity surface oil selected from isotridecyl isononanoate, PEG-4 diheptanoate, isostearyl neopentanoate, tridecyl neopentanoate, cetyl octanoate, cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, cocodicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, dioctyl malate ester, octyldodecanol, or mixtures of octyldodecanol,





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acetylated lanolin alcohol, cetyl acetate, isododecanol and polyglyceryl-3-diisostearate, and mixtures any of these.

15. A composition according to any preceding claim comprising:

- a) 35-60% of the volatile solvent which is itself comprised of a 10:1 to 1:10 ratio of cyclic silicones and C₈₋₂₀ isoparaffins;
- b) 3-10% of the silicone ester wax which is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate, or a mixture thereof;
- c) 10-30% of the wax;
- d) 10-30% of the powder component comprised, by weight of the total composition, of 10-20% non-pigment powder and 1-10% pigment powder; and
- e) 5-20% of a mixture of low viscosity and high viscosity surface oils.

16. A composition according to any preceding claim which further comprises an amorphous or atactic polypropylene having about 50-100% atactic content, 0.1-15% crystallinity, and a molecular weight of about 1,000-10,000.

17. A composition according to claim 16 wherein the atactic polypropylene is selected from the group consisting of an atactic polypropylene having a softening point of 20°C and a molecular weight of 2,000; an atactic polypropylene having a softening point of 135°C and a molecular weight of 5,600; and an atactic polypropylene having a softening point of 150°C and a molecular weight of about 4,400.

18. A cosmetic such as a concealer, blusher, eye





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shadow, foundation or lipstick, which cosmetic comprises a composition according to any preceding claim in association with a suitable receptacle therefor.

19. A method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic according to any preceding claim.

20. A process for preparing a cosmetic composition, which process comprises bringing into intimate physical admixture

- (a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
- (b) 0.1-15% silicone resin;
- (c) 10-45% of a wax having a melting point in the range of from 35 to 120°C;
- (d) 5-50% powder; and
- (e) 1-30% oil

and, if desired, allowing the mixture so produced to set in a mould.



* C L M S *

ABSTRACT

Cosmetic Compositions with Improved Transfer Resistance

A cosmetic composition comprising:

- a) 1-70% volatile solvent;
- b) 0.1-15% silicone resin;
- c) 10-45% wax;
- d) 5-50% powder; and
- e) 1-30% oil

has improved transfer resistance over previously-known cosmetics. They may be prepared by grinding some of the dry components with the solvent and resin, adding the wax and oil followed by the remainder of the dry components. When filled into suitable receptacles, the composition may be used as a concealer, blusher, eye shadow, foundation, lipstick or the like.

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COSMETIC COMPOSITIONS WITH IMPROVED TRANSFER RESISTANCE

The invention relates to cosmetic make-up compositions for application to lips and skin.

Cosmetic compositions are generally defined as compositions suitable for application to the human body. Cosmetic compositions such as creams and lotions are used to moisturise skin and keep it in a smooth, supple condition. Pigmented cosmetic compositions such as make-up, for example, concealer, blusher, eye shadow, foundation, lipstick, etc. are used to colour or tint the skin and lips. Since adding colour is one of the most important reasons for wearing cosmetics, colour-containing cosmetics need to be very carefully formulated to provide maximum wear and effect.

One of the long-standing problems with make-up, particularly lipstick, is the tendency of the cosmetic to blot or transfer from the skin onto other surfaces such as glassware, silverware, clothing, etc. This not only causes soiling of these surfaces, but forces the cosmetic wearer, especially lipstick user, to reapply cosmetic at fairly short intervals in order to maintain its effect, especially to keep the lips coloured.

Known cosmetics, particularly lipsticks, contain varying amounts of oil, wax and powder. However, all these hitherto-known compositions suffer from the disadvantages mentioned above.

It has now been found that incorporation of a volatile solvent and a silicone resin into such compositions mitigates the previously-mentioned disadvantages.

This invention therefore provides a cosmetic composition comprising oil, wax and powder, and

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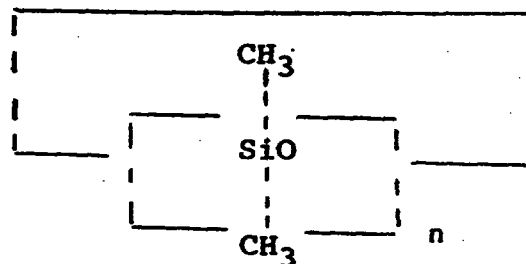
optionally other excipients, characterised in that the oil component contains 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C and the wax component contains 0.1-15% silicone resin, based on the total weight of the composition.

In particular, this invention provides a cosmetic composition comprising:

- a) 1-70% of a volatile solvent
- b) 0.1-15% silicone resin
- c) 10-45% wax
- d) 5-50% powder
- e) 1-30% oil

The composition of the invention provides a cosmetic composition which exhibits superior transfer resistance when compared with hitherto-known cosmetics.

In component (a), the term "volatile" means that the solvent has a measurable vapour pressure. The volatile solvents of the invention generally have a low viscosity, ranging from about 0.5 to 20 centipoise at 25°C. Volatile solvents suitable for use in the compositions of the invention include volatile, low-viscosity silicone liquids such as cyclic silicones having the formula:



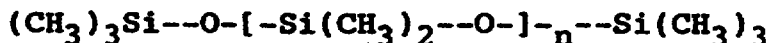
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wherein n is an integer of from 3-7. Volatile linear polydimethylsiloxanes are also suitable and generally have from about 3 to 9 silicon atoms and are of the formula:



wherein n is an integer of from 1-7. These silicones are available from various sources including Dow Corning Corporation, General Electric, etc. The Dow Corning cyclic silicones are sold under the tradenames Dow Corning 244, 245, 344, 345 and 200 fluids. These fluids comprise octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, hexamethyldisiloxane, or mixtures thereof. Also suitable as the volatile solvent are various C₈-C₂₀ isoparaffins such as C₁₂ isoparaffin made by The Permethyl Corporation having the registered trade mark Permethyl (R) 99A, or a C₁₂ isoparaffin (isododecane) having the trade name Permethyl 99A, both distributed for The Permethyl Corporation by Presperse Inc., South Plainfield, New Jersey, U.S.A. Various C₁₆ isoparaffins are commercially available, such as isohexadecane (having the registered trade mark Permethyl (R)) are also suitable. It is generally preferred that the volatile solvent component be a mixture of volatile silicones and C₈₋₂₀ isoparaffins. A ratio of from 10:1 to 1:10, respectively, is suitable. Preferably, the formulation comprises 35-60% of the volatile solvent. Therefore, a preferred formulation of the invention comprises 35-60% of a volatile solvent itself comprising a 10:1 to 1:10 ratio of cyclic silicones and C₈₋₂₀ isoparaffins.

The silicone resins of the invention are silicone ester waxes preferably chosen from those disclosed in US patent specification no. 4 725 658 (herein incorporated by reference) and having the following general formula:

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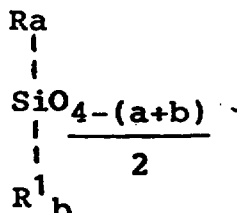


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wherein R is hydrogen or an organic radical, R^1 is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a+b has an average value of from about 1.0 to about 33.0 with the proviso that there is present at least one R^1 radical. The silicone ester waxes generally have a melting point of from about 40 to 90°C. The R radicals in the foregoing formula can be any substituted or unsubstituted organic radicals, for example, alkyl radicals such as methyl, ethyl, propyl, hexyl, octyl, decyl, cyclohexyl, cycloheptyl, and the like; aryl radicals such as phenyl, tolyl, xylyl, naphthyl, and the like; aralkyl radicals such as phenylethyl, benzyl, and the like; or any of the foregoing wherein one or more hydrogen atoms is replaced with, for example, a halogen, cyano, amino, or the like. Most preferably, all of the R radicals are methyl or a mixture of methyl and phenyl. Preferably, the R^1 radical is an ester having from 12-18 carbon atoms. Preferably, the R^1 radical is a C_{16} ester. Preferably, the formulation of the invention comprises 3-10% of a silicone resin. Examples of suitable silicone ester waxes are those such as lauryl trimethylolpropane siloxy silicate and isostearyl trimethylolpropane siloxy silicate.

The waxes or wax-like materials (also known in the art as "waxes") of the invention generally have a melting point in the range of from 35-120°C. Waxes in

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this category include synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax, spermaceti, stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax, bayberry wax, or mixtures thereof. Preferably, the formulation of the invention comprises about 10-30% wax, more preferably as a mixture of waxes.

The powder component of the invention is generally a dry, particulate matter having a particle size of 0.02-50 microns. The particulate matter may be coloured or non-coloured (for example, white) and, in particular, pigments are considered as "powder" for the purposes of this invention.

Suitable non-pigmented powders include bismuth oxychloride, titanated mica, fumed silica, spherical silica beads, polymethylmethacrylate beads, micronized teflon, boron nitride, acrylate polymers, aluminum silicate, aluminum starch octenylsuccinate, bentonite, calcium silicate, cellulose, chalk, corn starch, distomaceous earth, fuller's earth, glyceryl starch, hectorite, hydrated silica, kaolin, magnesium aluminum silicate, magnesium carbonate, magnesium hydroxide, magnesium oxide, magnesium silicate, magnesium trisilicate, maltodextrin, montmorillonite, microcrystalline cellulose, rice starch, silica, talc, mica, titanium dioxide, zinc laurate, zinc myristate, zinc neodecanoate, zinc rosinate, zinc stearate, polyethylene, alumina, attapulgite, calcium carbonate, calcium silicate, dextran, kaolin, nylon, silica silylate, silk powder, serecite, soy flour, tin oxide, titanium hydroxide, trimagnesium phosphate, walnut

shell powder, or mixtures thereof. The above-mentioned powders may be surface-treated with lecithin, amino acids, mineral oil, silicone oil or various other agents, either alone or in combination, which coat the powder surface and render the particles hydrophobic in nature.

The powder component may also comprise various organic and inorganic pigments. The organic pigments are generally various aromatic types including azo, indigoid, triphenylmethane, anthraquinone, and zanthine dyes which are designated as D&C and FD&C blues, browns, greens, oranges, reds, yellows, etc. Inorganic pigments generally consist of insoluble metallic salts of certified colour additives, referred to as the Lakes or iron oxides.

The percentage of pigments used in the powder component will depend upon the type of cosmetic being formulated. Blushers, eyeshadows, lipsticks and similar cosmetics will contain higher percentages of pigment in the powder phase, usually ranging from 5-50% of the total cosmetic composition. Generally, the powder:pigment ratio ranges from 1:20 to 20:1. Preferably, the invention comprises 10-30% of a powder component, especially wherein the non-pigment powder component comprises about 10-20% of the total composition and the pigment component comprises 1-10% of the total composition.

The composition of the invention also contains an oil, preferably comprising a mixture of low viscosity and high viscosity oils.

Suitable low viscosity oils have a viscosity of 5 to 100 centipoise at 25°C, and are generally esters having the structure RCO-OR' wherein RCO represents



a carboxylic acid radical and wherein OR' is an alcohol residue. Examples of these low viscosity oils include isotridecyl isononanoate, PEG-4 diheptanoate, where PEG-4 is a polymer of ethylene oxide of formula $H(OCH_2CH_2)_nOH$ wherein n has an average value of 4, isostearyl neopentanoate, tridecyl neopentanoate, cetyl octanoate, cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, coco-dicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, dioctyl malate ester, octyldodecanol, or mixtures of octyldodecanol, acetylated lanolin alcohol, cetyl acetate, isododecanol, polyglyceryl-3-diisostearate, or mixtures of any of these.

Suitable high viscosity surface oils generally have a viscosity of 200-1,000,000 centipoise at 25°C, preferably a viscosity of 100,000-250,000 centipoise at 25°C. Surface oils include castor oil, lanolin and lanolin derivatives, triisocetyl citrate, sorbitan sesquioleate, C₁₀₋₁₈ triglycerides, caprylic/capric/ triglycerides, coconut oil, corn oil, cottonseed oil, glyceryl triacetyl hydroxystearate, glyceryl triacetyl ricinoleate, glyceryl trioctanoate, hydrogenated castor oil, linseed oil, mink oil, olive oil, palm oil, illipe butter, rapeseed oil, soybean oil, sunflower seed oil, tallow, tricaprin, trihydroxystearin, triisostearin, trilaurin, trilinolein, trimyristin, triolein, tripalmitin, tristearin, walnut oil, wheat germ oil, cholesterol, or mixtures thereof.

The ratio of low viscosity to high viscosity oils in the oil phase is preferably in the range of from 1:15 to 15:1, more preferably 1:10 to 10:1,



respectively. The preferred formulation of the invention comprises 1-20% of a mixture of low viscosity and high viscosity surface oils.

Especially preferred compositions are those comprising:

- a) 35-60% of the volatile solvent;
- b) 3-10% of the silicone ester wax which is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate, or a mixture thereof;
- c) 10-30% of the wax;
- d) 10-30% of the powder component comprised, by weight of the total composition, of 10-20% non-pigment powder and 1-10% pigment powder; and
- e) 5-20% of a mixture of low viscosity and high viscosity surface oils.

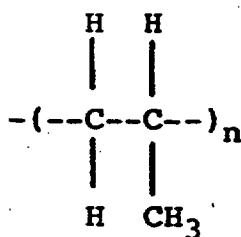
Other ingredients may also be added to the above composition including various types of amorphous or atactic polypropylene, and preservatives or antioxidants, and the like.

Preferably, amorphous or atactic polypropylene is incorporated in the range of from about 0.1-10%. Suitable polypropylenes are atactic polypropylenes having about 50-100% atactic content, 0.1-15% crystallinity, and a molecular weight of about 1,000-10,000 wherein the term "molecular weight" means average number molecular weight; the term "atactic content" means that the polypropylene polymeric structure is random or without orientation, as opposed to isotactic or syndiotactic polymers which exhibit specific orientation and structural regularity. Isotactic and syndiotactic polymers, due to their

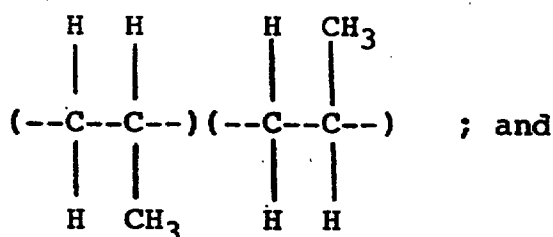




structural regularity, can easily cross-link to form a crystalline network whereas the structural irregularity of atactic polymers precludes appreciable polymeric cross linking:



isotactic



syndiotactic

the term "crystallinity" refers to the degree of cross-linking of the polypropylene polymer. Crystallinity is directly proportional to the degree of polymeric cross-linking, and polymers which exhibit extensive cross-linking are highly crystalline in nature.

Preferably, the atactic polypropylene is selected from the group consisting of an atactic polypropylene having a softening point of 20°C and a molecular weight of 2,000; an atactic polypropylene having a softening point of 135°C and a molecular weight of 5,600; and an atactic polypropylene having a softening point of 150°C and a molecular weight of about 4,400.

Suitable preservatives include those such as the parabens, butylated hydroxy toluene (BHT), butylated hydroxy anisole (BHA), and the like. Generally, 0.01-5% preservative is suitable.

The present invention further provides a cosmetic such as a concealer, blusher, eye shadow, foundation or lipstick, which cosmetic comprises a composition as hereinbefore described in association with a suitable



receptacle therefor.

The present invention further provides a method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic as hereinbefore described.

The present invention further provides a process for preparing a cosmetic composition as hereinbefore described, which process comprises bringing into intimate physical admixture

- (a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
- (b) 0.1-15% silicone resin;
- (c) 10-45% of a wax having a melting point in the range of from 35 to 120°C;
- (d) 5-50% powder; and
- (e) 1-30% oil

The cosmetic compositions according to the invention provide a novel finish which exhibits superior transfer resistance when compared with hitherto-known cosmetic compositions. The term ^{superior} "transfer resistance" means that when the cosmetic composition is applied to skin or lips it exhibits from 10-100%, preferably 30-100%, improvement in transfer resistance when compared with a hitherto-known formulation. When the cosmetic is a lipstick, transfer resistance can be measured by the "Kiss Test" as described in Example 4.

The invention will be further illustrated by the

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following examples.

EXAMPLE 1

A transfer resistant lipstick composition with shine was made according to the following formula:

	w.w%	
	(a)	(b)
Synthetic wax	6.00	6.60
Ceresin	4.00	4.00
Paraffin	3.00	3.00
Isododecane	10.00	10.00
Cetyl acetate:acetylated lanolin alcohol (90:10)	5.00	5.00
Methyl paraben	.30	.30
Propyl paraben	.10	.10
BHA	.10	.10
Red #7 Calcium Lake	4.00	3.00
Yellow 5 Aluminum Lake	3.00	-----
Titanium dioxide/mica	5.00	-----
Titanium dioxide/mica/iron oxide	3.00	-----
Bismuth oxychloride	10.00	15.00
Cyclomethicone	41.50	40.40
Isostearyl trimethylolpropane siloxy silicate	5.00	5.00

EXAMPLE 2

A transfer resistant lipstick composition was made according to the following formula:

	w.w%
Cococaprylate/caprate	2.70
Cetyl acetate:acetylated lanolin alcohol	1.00
Isostearyltrimethylol propane siloxysilicate	7.00
Methylparaben	0.30
Propylparaben	0.10
BHA	0.10
Synthetic wax	6.60
Ceresin wax	4.00
Paraffin wax	3.00
Ozokerite wax	1.00
Illipe butter	0.20
Octyldodecanol, trilaurin phospholipids, cholesterol, glycosphingolipids	0.50
Bismuth oxychloride	9.00
Dimethicone treated mica	2.50
Mica/titanium dioxide	2.50

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Cyclomethicone	41.40
Isododecanol	9.00
Polypropylene (atactic)	0.10
Lanolin oil	3.50
Trioctyldodecyl citrate	2.00
pigment solids*	3.50

*D&C red 7 Calcium Lake	0.90
D&C red 7 Barium Lake	2.30
FD&C yellow 6 Aluminum Lake	0.30

The lipstick formulations of Examples 1 and 2 were made by grinding a portion of the powder (non-pigmented and pigmented) ingredients with some of the volatile solvent and silicone ester wax. Next, the waxes and oils were added with heating. The remainder of the powder component was then added. The mixture was then stirred before pouring into moulds and left to cool.

EXAMPLE 3

A transfer resistant eyeshadow, blusher and concealer were made according to the following compositions:

	w/w%		
	eyeshadow	blusher	concealer
Cococaprylate/caprate	2.700	2.700	2.700
Cetyl acetate/acetylated lanolin alcohol	1.000	1.000	1.000
Isostearyl trimethylol propanesiloxysilicate	7.000	7.000	7.000
Synthetic wax	6.600	6.600	6.600
Ceresin wax	4.000	4.000	4.000
Paraffin wax	3.000	3.000	3.000
Ozokerite	1.000	1.000	1.000
Octyldodecanol/trilaurin phospholipid/cholesterol/glycosphingolipids	0.500	0.500	0.500
Illipe butter	0.200	0.200	0.200
Polypropylene (atactic)	0.100	0.100	0.100
Methyl paraben	0.300	0.300	0.300
Propyl paraben	0.100	0.100	0.100
BHA	0.100	0.100	0.100
Lanolin oil	3.500	3.500	3.500
D&C red 7 calcium lake	-----	2.100	-----

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DF&C yellow 5 aluminum lake	-----	0.800	-----
Red iron oxide	2.100	-----	2.100
Yellow iron oxide	0.800	-----	0.800
Black iron oxide	0.500	0.500	0.100
Titanium dioxide	0.100	0.100	0.100
Bismuth oxychloride	3.000	3.000	3.000
Titanium dioxide/mica	9.00	9.000	9.000
Cyclomethicone	41.400	41.400	41.400
Mico/dimethicone	2.000	2.000	2.000
Isododecane	9.000	9.000	9.000
Trioctyldodecyl citrate	2.000	2.000	2.000

The above cosmetic compositions were made by first mixing all the dry ingredients. The waxes and oils were added with heating. The volatile solvent and silicone ester wax were next added, followed by the remaining ingredients. The mixture was stirred before being poured into the appropriate moulds and allowed to cool.

EXAMPLE 4

Two groups of thirty nine panelists were asked to compare a lipstick formulation of the invention according to Example 2 hereof ("A") with a known, commercially-available lipstick formulation ("B"), having a formulation as specified at the end of this example.

Formulations A and B

<u>A</u>		<u>B</u>
1-70% volatile solvent		-*
0.1-1.5% silicone resin		-
10-45% wax	10-45%	(candelilla wax (carnauba wax (ceresin (paraffin
5-50% powder	5-50%	(mica (titanium dioxide (reds and yellow
1-30% oil	1-30%*	(octyl palmitate (lanolin oil (castor oil (cetyl acetate

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(*: With the balance of the formulation made up by a higher % of natural oils, in the absence of volatile solvent).

The first group of thirty nine panelists were asked to use lipstick "A" for one week in place of their current lipstick brand. The second group of thirty nine panelists were asked to use formulation "B" for one week in place of their current lipstick brand. The panelists were then asked a series of questions as follows:

Did the lipstick product bleed?

	<u>A</u>	<u>B</u>
Yes	1	8
No	38	31

If so, after how long?

	<u>A</u>	<u>B</u>
1/2 hour	-	1
1 hour	-	1
2 hours	-	4
Other (3-5 hours)	1	2

Did the lipstick leave a rim on coffee cups or cigarettes?

	<u>A</u>	<u>B</u>
Yes	15	36
No	24	3

Would you consider this test lipstick to be "long wearing"?

	<u>A</u>	<u>B</u>
Yes	34	36
No	5	21

KISS TEST

Panelists were asked to apply the lipstick, wait 5 minutes, then kiss their hand. The panelists were then asked if the lipstick "left hardly a trace" of colour on their hand. They reported as follows:

	<u>A</u>	<u>B</u>
Yes	34	6
No	5	33

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The above results show that the lipstick formulation of the invention exhibited superior transfer resistance when compared to a commercial lipstick formulation. Approximately 87% of the panelists agreed that lipstick "A" left hardly a trace of colour on their hand whereas only 15% of panelists agreed that sample "B" (a traditional lipstick) left hardly a trace of colour on their hand. The degree of improvement seen with sample A is approximately 72%.

Further details of Formulation B

	w/w%
Candelilla wax	1-5
Carnauba	1-5
Ceresin	1-5
Paraffin	1-5
Propylene glycol ricinoleate	1-10
Octyl hydroxystearate	5-15
PVP hexadecene copolymer	1-5
UV absorbers	0.5-5
Cetyl acetate:acetylated lanolin alcohol (90:10)	10-15
Octyl palmitate	5-10
Lanolin oil	5-25
Preservatives	0.1-3
Castor oil	5-25
Acrylates copolymer	0.01-5
Pigments	3-20
Fragrance	0.1-1

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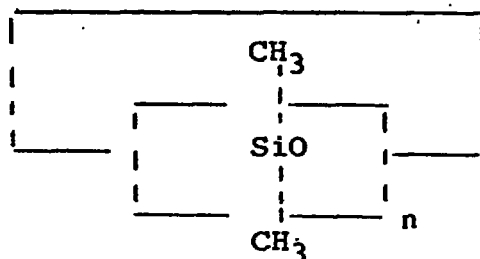
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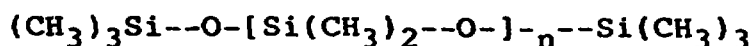
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CLAIMS

1. A cosmetic composition comprising oil, wax and powder, and optionally other excipients, characterised in that the oil component contains 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C and the wax component contains 0.1-15% silicone resin, based on the total weight of the composition.
2. A cosmetic composition according to claim 1 comprising:
 - a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
 - b) 0.1-15% silicone resin;
 - c) 10-45% of a wax having a melting point in the range of from 35 to 120°C;
 - d) 5-50% powder; and
 - e) 1-30% oil.
3. A composition according to any preceding claim wherein the volatile solvent is a cyclic silicone having the formula:



wherein n is an integer of from 3-7; or a volatile linear polydimethylsiloxane having from about 3 to 9 silicon atoms and of the general formula:



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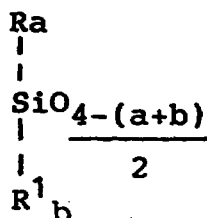
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wherein n is an integer of from 1-7; or a C₈-C₂₀ isoparaffin, or mixtures thereof.

4. A composition according to any preceding claim wherein the volatile solvent is itself comprised of a 10:1 to 1:10 ratio of cyclic silicones and C₈-20 isoparaffins.

5. A composition according to any preceding claim wherein the silicone resin is a silicone ester wax of the formula:



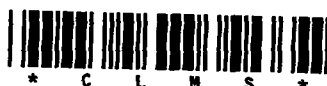
wherein R is hydrogen or an organic radical, R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a+b has an average value substantially in the range of from 1.0 to 3.0 with the proviso that there is present at least on R¹ radical.

6. A composition according to any preceding claim wherein the silicone ester wax has a melting point of from about 40 to 90°C.

7. A composition according to claim 6 wherein the R¹ radical is an ester having from 12-18 carbon atoms.

8. A composition according to any preceding claim wherein the silicone resin is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate.

9. A composition according to any preceding claim wherein the wax is synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter shellac wax, spermaceti,





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stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax or bayberry wax, or a mixture thereof.

10. A composition according to any preceding claim wherein the powder comprises a dry particulate matter having a particle size in the range of from 0.02-50 microns.

11. A composition according to any preceding claim wherein the ratio of non-pigment powder to pigment in the powder is in the range of from 1:20 to 20:1, respectively.

12. A composition according to any preceding claim wherein the oil comprises a low viscosity oil, a high viscosity oil or a mixture thereof wherein the low viscosity oil has a viscosity in the range of from 5 to 100 centipoise at 25°C and wherein the high viscosity oil has a viscosity in the range of from 200-1,000,000 centipoise at 25°C.

13. A composition according to any preceding claim wherein the oil comprises a mixture of low viscosity and high viscosity oils in the ratio ranging from 1:15 to 15:1, respectively.

14. A composition according to any preceding claim wherein the oil incorporates a low viscosity surface oil selected from isotridecyl isononanoate, PEG-4 diheptanoate, isostearyl neopentanoate, tridecyl neopentanoate, cetyl octanoate, cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, cocodicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, dioctyl malate ester, octyldodecanol, or mixtures of octyldodecanol,



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acetylated lanolin alcohol, cetyl acetate, isododecanol and polyglyceryl-3-diisostearate, and mixtures any of these.

15. A composition according to any preceding claim comprising:

- a) 35-60% of the volatile solvent which is itself comprised of a 10:1 to 1:10 ratio of cyclic silicones and C₈₋₂₀ isoparaffins;
- b) 3-10% of the silicone ester wax which is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate, or a mixture thereof;
- c) 10-30% of the wax;
- d) 10-30% of the powder component comprised, by weight of the total composition, of 10-20% non-pigment powder and 1-10% pigment powder; and
- e) 5-20% of a mixture of low viscosity and high viscosity surface oils.

16. A composition according to any preceding claim which further comprises an amorphous or atactic polypropylene having about 50-100% atactic content, 0.1-15% crystallinity, and a molecular weight of about 1,000-10,000.

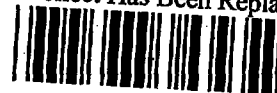
17. A composition according to claim 16 wherein the atactic polypropylene is selected from the group consisting of an atactic polypropylene having a softening point of 20°C and a molecular weight of 2,000; an atactic polypropylene having a softening point of 135°C and a molecular weight of 5,600; and an atactic polypropylene having a softening point of 150°C and a molecular weight of about 4,400.

18. A cosmetic such as a concealer, blusher, eye

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shadow, foundation or lipstick, which cosmetic comprises a composition according to any preceding claim in association with a suitable receptacle therefor.

19. A method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic according to any preceding claim.

20. A process for preparing a cosmetic composition, which process comprises bringing into intimate physical admixture

- (a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
- (b) 0.1-15% silicone resin;
- (c) 10-45% of a wax having a melting point in the range of from 35 to 120°C;
- (d) 5-50% powder; and
- (e) 1-30% oil

and, if desired, allowing the mixture so produced to set in a mould.



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ABSTRACT

Cosmetic Compositions with Improved Transfer Resistance

A cosmetic composition comprising:

- a) 1-70% volatile solvent;
- b) 0.1-15% silicone resin;
- c) 10-45% wax;
- d) 5-50% powder; and
- e) 1-30% oil

has improved transfer resistance over previously-known cosmetics. They may be prepared by grinding some of the dry components with the solvent and resin, adding the wax and oil followed by the remainder of the dry components. When filled into suitable receptacles, the composition may be used as a concealer, blusher, eye shadow, foundation, lipstick or the like.

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COSMETIC COMPOSITIONS WITH IMPROVED TRANSFER RESISTANCE

The invention relates to cosmetic make-up compositions for application to lips and skin.

Cosmetic compositions are generally defined as compositions suitable for application to the human body. Cosmetic compositions such as creams and lotions are used to moisturise skin and keep it in a smooth, supple condition. Pigmented cosmetic compositions such as make-up, for example, concealer, blusher, eye shadow, foundation, lipstick, etc. are used to colour or tint the skin and lips. Since adding colour is one of the most important reasons for wearing cosmetics, colour-containing cosmetics need to be very carefully formulated to provide maximum wear and effect.

One of the long-standing problems with make-up, particularly lipstick, is the tendency of the cosmetic to blot or transfer from the skin onto other surfaces such as glassware, silverware, clothing, etc. This not only causes soiling of these surfaces, but forces the cosmetic wearer, especially lipstick user, to reapply cosmetic at fairly short intervals in order to maintain its effect, especially to keep the lips coloured.

Known cosmetics, particularly lipsticks, contain varying amounts of oil, wax and powder. However, all these hitherto-known compositions suffer from the disadvantages mentioned above.

It has now been found that incorporation of a volatile solvent and a silicone resin into such compositions mitigates the previously-mentioned disadvantages.

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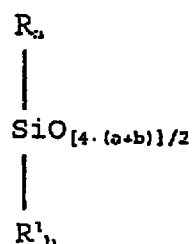
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This invention therefore provides a cosmetic composition comprising oil, wax and powder, and optionally other excipients, characterised in that the composition comprises, by weight of the total composition,

- (a) 1-70% volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
- (b) 0.1-15% silicone ester wax of the general formula:



wherein R is hydrogen or an organic radical, R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a + b has an average value substantially in the range of from 1.0 to 3.0 with the proviso that there is present at least one R¹ radical;

- (c) 10-45% wax;
- (d) 5-50% powder; and
- (e) 1-30% oil.

The composition of the invention provides a cosmetic composition which exhibits superior transfer resistance when compared with hitherto-known cosmetics.

In component (a), the term "volatile" means that the solvent has a measurable vapour pressure. The volatile solvents of the invention generally have a low viscosity, ranging from about 0.5 to 20 centipoise at 25°C. Volatile solvents suitable for use in the compositions of the invention

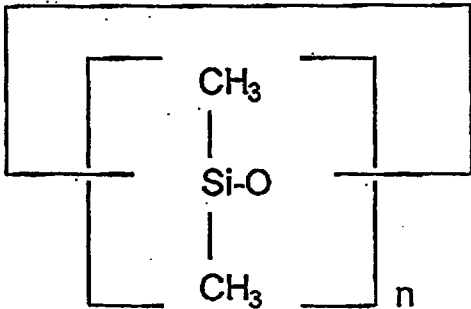
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silicones having the formula:



about 2 to 9 silicon atoms and are of the formula:



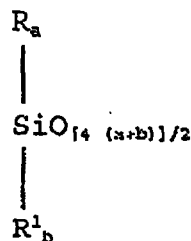
wherein n is an integer from 0 to 7. These silicones are available from various sources including Dow Corning Corporation, General Electric, etc. The Dow Corning cyclic silicones are sold under the tradenames Dow Corning 244, 245, 344, 345 and 200 fluids. These fluids comprise octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, hexamethyldisiloxane, or mixtures thereof. Also suitable as the volatile solvent are various C₈-C₂₀ isoparaffins such as C₁₂ isoparaffin made by The Permethyl Corporation having the trade mark Permethyl 99A (isodecane), distributed for The Permethyl Corporation by Presperse Inc., South Plainfield, New Jersey, U.S.A. Various C₁₆ isoparaffins are commercially available, such as isohexadecane (having the registered trade mark Permethyl 101A) are also suitable. It is generally preferred that the volatile solvent component be a mixture of volatile silicones and C₈₋₂₀ isoparaffins. A ratio of from 10:1 to 1:10,

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respectively, is suitable. Preferably, the formulation comprises 35-60% of the volatile solvent. Therefore, a preferred formulation of the invention comprises 35-60% of a volatile solvent itself comprising a 10:1 to 1:10 ratio of cyclic silicones and C₈₋₂₀ isoparaffins.

The silicone resins of the invention are silicone ester waxes preferably chosen from those disclosed in US patent specification no. 4 725 658 (herein incorporated by reference) and having the following general formula:



wherein R is hydrogen or an organic radical, R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a+b has an average value of from about 1.0 to about 3.0 with the proviso that there is present at least one R¹ radical. The silicone ester waxes generally have a melting point of from about 40 to 90°C. The R radicals in the foregoing formula can be any substituted or unsubstituted organic radicals, for example alkyl radicals such as methyl, ethyl, propyl, hexyl, octyl, decyl, cyclohexyl, cycloheptyl, and the like; aryl radicals such as phenyl, tolyl, xylyl, naphthyl, and the like; aralkyl radicals such as phenylethyl, benzyl, and the like; or any of the foregoing wherein one or more hydrogen atoms is replaced with, for example, a halogen, cyano, amino, or the like. Most preferably, all of the R radicals are methyl or a mixture of methyl and phenyl. Preferably, the R¹ radical is an

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ester having from 12-18 carbon atoms. Preferably, the R¹ radical is a C₁₆ ester. Preferably, the formulation of the invention comprises 3-10% of a silicone resin. Examples of suitable silicone ester waxes are those such as lauryl trimethylolpropane siloxy silicate and isostearyl trimethylolpropane siloxy silicate.

The waxes or wax-like materials (also known in the art as "waxes") of the invention generally have a melting point in the range of from 35-120°C. Waxes in this category include synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax, spermaceti, stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax, bayberry wax, or mixtures thereof. Preferably, the formulation of the invention comprises about 10-30% wax, more preferably as a mixture of waxes.

The powder component of the invention is generally a dry, particulate matter having a particle size of 0.02-50 microns. The particulate matter may be coloured or non-coloured (for example, white) and, in particular, pigments are considered as "powder" for the purposes of this invention.

Suitable non-pigmented powders include bismuth oxychloride, titanated mica, fumed silica, spherical silica beads, polymethylmethacrylate beads, micronized teflon, boron nitride, acrylate polymers, aluminum silicate, aluminum starch octenylsuccinate, bentonite, calcium silicate, cellulose, chalk, corn starch, distomaceous earth, fuller's earth, glyceryl starch, hectorite, hydrated silica, kaolin, magnesium aluminum silicate, magnesium carbonate, magnesium hydroxide, magnesium oxide, magnesium silicate, magnesium trisilicate,

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maltodextrin, montmorillonite, microcrystalline cellulose, rice starch, silica, talc, mica, titanium dioxide, zinc laurate, zinc myristate, zinc neodecanoate, zinc rosinate, zinc stearate, polyethylene, alumina, attapulgite, calcium carbonate, calcium silicate, dextran, kaolin, nylon, silica silylate, silk powder, sericite, soy flour, tin oxide, titanium hydroxide, trimagnesium phosphate, walnut shell powder, or mixtures thereof. The above-mentioned powders may be surface-treated with lecithin, amino acids, mineral oil, silicone oil or various other agents, either alone or in combination, which coat the powder surface and render the particles hydrophobic in nature.

The powder component may also comprise various organic and inorganic pigments. The organic pigments are generally various aromatic types including axo, indigoid, triphenylmethane, anthraquinone, and zanthine dyes which are designated as D&C and FD&C blues, browns, greens, oranges, reds, yellows, etc. Inorganic pigments generally consist of insoluble metallic salts of certified colour additives, referred to as the Lakes or iron oxides.

The percentage of pigments used in the powder component will depend upon the type of cosmetic being formulated. Blushers, eyeshadows, lipsticks and similar cosmetics will contain higher percentages of pigment in the powder phase, usually ranging from 5-50% of the total cosmetic composition. Generally, the powder:pigment ratio ranges from 1:20 to 20:1. Preferably, the invention comprises 10-30% of a powder component, especially wherein the non-pigment powder component comprises about 10-20% of the total composition and the pigment component comprises 1-10% of the total composition.

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The composition of the invention also contains an oil, preferably comprising a mixture of low viscosity and high viscosity oils.

Suitable low viscosity oils have a viscosity of 5 to 100 centipoise at 25°C, and are generally esters having the structure RCO-OR' wherein RCO represents a carboxylic acid radical and wherein OR' is an alcohol residue. Examples of these low viscosity oils include isotridecyl isononanoate, PEG-4 diheptanoate, where PEG-4 is a polymer of ethylene oxide of formula $\text{H(OCH}_2\text{CH}_2)_n\text{OH}$ wherein n has an average value of 4, isostearyl neopentanoate, tridecyl neopentanoate, cetyl octanoate, cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, coco-dicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, dioctyl malate ester, octyldodecanol, or mixtures of octyldodecanol, acetylated lanolin alcohol, cetyl acetate, isododecanol, polyglyceryl-3-diisostearate, or mixtures of any of these.

Suitable high viscosity surface oils generally have a viscosity of 200-1,000,000 centipoise at 25°C, preferably a viscosity of 100,000-250,000 centipoise at 25°C. Surface oils include castor oil, lanolin and lanolin derivatives, triisocetyl citrate, sorbitan sesquioleate, C_{10-18} triglycerides, caprylic/capric/triglycerides, coconut oil, corn oil, cottonseed oil, glyceryl triacetyl hydroxystearate, glyceryl triacetyl ricinoleate, glyceryl trioctanoate, hydrogenated castor oil, linseed oil, mink oil, olive oil, palm oil, illipe butter, rapeseed oil, soybean oil, sunflower seed oil, tallow, tricaprin, trihydroxystearin, triisostearin, trilaurin, trilinolein, trimyristin, triolein, tripalmitin, tristearin,

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walnut oil, wheat germ oil, cholesterol, or mixtures thereof.

The ratio of low viscosity to high viscosity oils in the oil phase is preferably in the range of from 1:15 to 15:1, more preferably 1:10 to 10:1, respectively. The preferred formulation of the invention comprises 1-20% of a mixture of low viscosity and high viscosity surface oils.

Especially preferred compositions are those comprising:

- a) 35-60% of the volatile solvent;
- b) 3-10% of the silicone ester wax which is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate, or a mixture thereof;
- c) 10-30% of the wax;
- d) 10-30% of the powder component comprised, by weight of the total composition, of 10-20% non-pigment powder and 1-10% pigment powder; and
- e) 5-20% of a mixture of low viscosity and high viscosity surface oils.

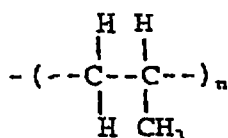
Other ingredients may also be added to the above composition including various types of amorphous or atactic polypropylene, and preservatives or antioxidants, and the like.

Preferably, amorphous or atactic polypropylene is incorporated in the range of from about 0.1-10%. Suitable polypropylenes are atactic polypropylenes having about 50-100% atactic content, 0.1-15% crystallinity, and a molecular weight of about 1,000-10,000 wherein the term "molecular weight" means average number molecular weight; the term "atactic content" means that the polypropylene polymeric structure is random or without orientation, as opposed to isotactic or syndiotactic

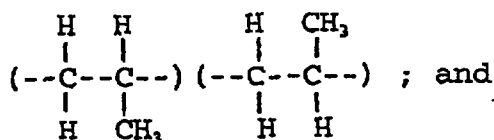
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polymers which exhibit specific orientation and structural regularity. Isotactic and syndiotactic polymers, due to their structural regularity, can easily cross-link to form a crystalline network whereas the structural irregularity of atactic polymers precludes appreciable polymeric cross linking:



isotactic



syndiotactic

the term "crystallinity" refers to the degree of cross-linking of the polypropylene polymer. Crystallinity is directly proportional to the degree of polymeric cross-linking, and polymers which exhibit extensive cross-linking are highly crystalline in nature.

Preferably, the atactic polypropylene is selected from the group consisting of an atactic polypropylene having a softening point of 20°C and a molecular weight of 2,000; an atactic polypropylene having a softening point of 135°C and a molecular weight of 5,600; and an atactic polypropylene having a softening point of 150°C and a molecular weight of about 4,400.

Suitable preservatives include those such as the parabens, butylated hydroxy toluene (BHT), butylated hydroxy anisole (BHA), and the like. Generally, 0.01-5% preservative is suitable.

The present invention further provides a cosmetic such as a concealer, blusher, eye shadow, foundation or lipstick, which cosmetic comprises a composition as hereinbefore

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described in association with a suitable receptacle therefor.

The present invention further provides a method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic as hereinbefore described.

The present invention further provides a process for preparing a cosmetic composition as hereinbefore described, which process comprises bringing into intimate physical admixture

- (a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
- (b) 0.1-15% silicone resin;
- (c) 10-45% of a wax having a melting point in the range of from 35 to 120°C;
- (d) 5-50% powder; and
- (e) 1-30% oil

The cosmetic compositions according to the invention provide a novel finish which exhibits superior transfer resistance when compared with hitherto-known cosmetic compositions. The term "superior transfer resistance" means that when the cosmetic composition is applied to skin or lips it exhibits from 10-100%, preferably 30-100%, improvement in transfer resistance when compared with a hitherto-known formulation. When the cosmetic is a lipstick, transfer resistance can be measured by the "Kiss Test" as described in Example 4.

The invention will be further illustrated by the following examples.



EXAMPLE 1

A transfer resistant lipstick composition with shine was made according to the following formula:

	w/w%	
	(a)	(b)
Synthetic wax	6.00	6.60
Ceresin	4.00	4.00
Paraffin	3.00	3.00
Isododecane	10.00	10.00
Cetyl acetate:acetylated lanolin alcohol (90:10)	5.00	5.00
Methyl paraben	0.30	0.30
Propyl paraben	0.10	0.10
BHA	0.10	0.10
Red #7 Calcium Lake	4.00	3.00
Yellow 5 Aluminum Lake	3.00	----
Titanium dioxide/mica	5.00	----
Titanium dioxide/mica/iron oxide	3.00	----
Bismuth oxychloride	10.00	15.00
Cyclomethicone	41.50	40.40
Isostearyl trimethylolpropane siloxy silicate	5.00	5.00

EXAMPLE 2

A transfer resistant lipstick composition was made according to the following formula:

	w/w%
Cococaprylate/caprate	2.70
Cetyl acetate:acetylated lanolin alcohol	1.00
Isostearyltrimethylol propane	

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siloxysilicate	7.00
Methylparaben	0.30
Propylparaben	0.10
BHA	0.10
Synthetic wax	6.60
Ceresin wax	4.00
Paraffin wax	3.00
Ozokerite wax	1.00
Illipe butter	0.20
Octyldodecanol, trilaurin phospholipids, cholesterol, glycosphingolipids	0.50
Bismuth oxychloride	9.00
Dimethicone treated mica	2.50
Mica/titanium dioxide	2.50
Cyclomethicone	41.40
Isododecanol	9.00
Polypropylene (atactic)	0.10
Lanolin oil	3.50
Trioctyldodecyl citrate	3.50
pigment solids*	3.50
* D&C red 7 Calcium Lake	0.90
D&C red 7 Barium Lake	2.30
FD&C yellow 6 Aluminum Lake	0.30

The lipstick formulations of Examples 1 and 2 were made by grinding a portion of the powder (non-pigmented and pigmented) ingredients with some of the volatile solvent and silicone ester wax. Next, the waxes and oils were added with heating. The remainder of the powder component was then added. The mixture was then stirred before pouring into moulds and left to cool.

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EXAMPLE 3

A transfer resistant eyeshadow, blusher and concealer were made according to the following compositions:

	w/w%		
	eyeshadow	blusher	concealer
Cococaprylate/caprate	2.700	2.700	2.700
Cetyl acetate/acetylated			
lanolin alcohol	1.000	1.000	1.000
Isostearyl trimethylol			
propanesiloxysilicate	7.000	7.000	7.000
Synthetic wax	6.600	6.600	6.600
Ceresin wax	4.000	4.000	4.000
Paraffin wax	3.000	3.000	3.000
Ozokerite	1.000	1.000	1.000
Octyldodecanol/trilaurin			
phospholipid/cholesterol/			
glycosphingo-lipids	0.500	0.500	0.500
Illipe butter	0.200	0.200	0.200
Polypropylene (atactic)	0.100	0.100	0.100
Methyl paraben	0.300	0.300	0.300
Propyl paraben	0.100	0.100	0.100
BHA	0.100	0.100	0.100
Lanolin oil	3.500	3.500	3.500
D&C red 7 calcium lake	-----	2.100	-----
DF&C yellow 5 aluminum lake	-----	0.800	-----
Red iron oxide	2.100	-----	2.100
Yellow iron oxide	0.800	-----	0.800
Black iron oxide	0.500	0.500	0.100
Titanium dioxide	0.100	0.100	0.100
Bismuth oxychloride	3.000	3.000	3.000
Titanium dioxide/mica	9.000	9.000	9.000
Cyclomethicone	41.400	41.400	41.400

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Mico/dimethicone	2.000	2.000	2.000
Isododecane	9.000	9.000	9.000
Trioctyldodecyl citrate	2.000	2.000	2.000

The above cosmetic compositions were made by first mixing all the dry ingredients. The waxes and oils were added with heating. The volatile solvent and silicone ester wax were next added, followed by the remaining ingredients. The mixture was stirred before being poured into the appropriate moulds and allowed to cool.

EXAMPLE 4

Two groups of thirty nine panelists were asked to compare a lipstick formulation of the invention according to Example 2 hereof ("A") with a known, commercially-available lipstick formulation ("B"), having a formulation as specified at the end of this example.

Formulations A and B

<u>A</u>		<u>B</u>
1-70% volatile solvent		-*
0.1-1.5% silicone resin		-
10-45% wax		(candelilla wax
	10-45%	(carnauba wax
		(ceresin
		(paraffin
5-50% powder	5-50%	(mica
		(titanium dioxide
		(reds and yellow

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1-30% oil

1-30%*

(octyl palmitate
(lanolin oil
(castor oil
(cetyl acetate

(*: With the balance of the formulation made up by a higher
% of natural oils, in the absence of volatile solvent).

The first group of thirty nine panelists was asked to use lipstick "A" for one week in place of their current lipstick brand. The second group of thirty nine panelists was asked to use formulation "B" for one week in place of their current lipstick brand. The panelists were then asked a series of questions as follows:

Did the lipstick product bleed?

	<u>A</u>	<u>B</u>
Yes	1	8
No	38	31

If so, after how long?

	<u>A</u>	<u>B</u>
½ hour	-	1
1 hour	-	1
2 hours	-	4
Other (3-5 hours)	1	2

Did the lipstick leave a rim on coffee cups or cigarettes?

	<u>A</u>	<u>B</u>
Yes	15	36
No	24	3

Would you consider this test lipstick to be "long wearing"?

<u>A</u>	<u>B</u>
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Yes	34	36
No	5	21

KISS TEST

Panelists were asked to apply the lipstick, wait 5 minutes, then kiss their hand. The panelists were then asked if the lipstick "left hardly a trace" of colour on their hand. They reported as follows:

	A	B
Yes	34	6
No	5	33

The above results show that the lipstick formulation of the invention exhibited superior transfer resistance when compared to a commercial lipstick formulation. Approximately 87% of the panelists agreed that lipstick "A" left hardly a trace of colour on their hand whereas only 15% of panelists agreed that sample "B" (a traditional lipstick) left hardly a trace of colour on their hand. The degree of improvement seen with sample A is approximately 72%.

Further details of Formulation B

	w/w%
Candelilla wax	1-5
Carnauba	1-5
Ceresin	1-5
Paraffin	1-5
Propylene glycol ricinoleate	1-10
Octyl hydroxystearate	5-15
PVP hexadecene copolymer	1-5
UV absorbers	1.5-5
Cetyl acetate:acetylated lanolin	
alcohol (90:10)	10-15

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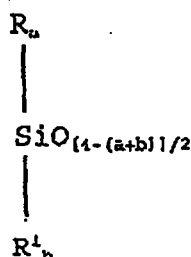
Octyl palmitate	5-10
Lanolin oil	5-25
Preservatives	0.1-3
Castor oil	5-25
Acrylates copolymer	0.01-5
Pigments	3-20
Fragrance	0.1-1

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CLAIMS

1. A cosmetic composition comprising oil, wax and powder, and optionally other excipients, characterised in that the composition comprises, by weight of the total composition,
- (a) 1-70% volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
 - (b) 0.1-15% silicone ester wax of the general formula:



wherein R is hydrogen or an organic radical, R^1 is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a + b has an average value substantially in the range of from 1.0 to 3.0 with the proviso that there is present at least one R^1 radical;

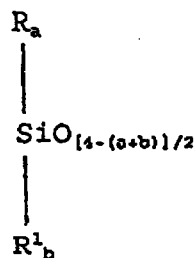
- (c) 10-45% wax;
- (d) 5-50% powder; and
- (e) 1-30% oil.

2. A cosmetic composition comprising oil, wax and powder, and optionally other excipients, characterised in that the composition comprises, by weight of the total composition,
- (a) 1-70% volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C;
 - (b) 0.1-15% silicone ester wax of the general unit formula:



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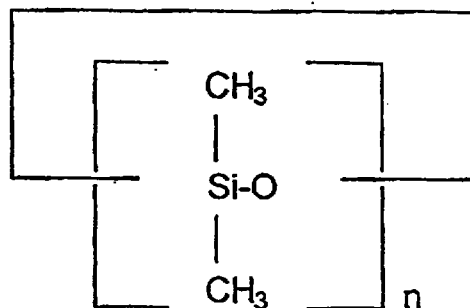
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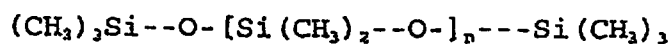
wherein R is hydrogen or an organic radical; R^1 is an ester-containing radical having at least 12 carbon atoms; a is an integer of from 0 to 3 inclusive; b is an integer of from 0 to 3 inclusive, and the sum of a + b has an average value substantially in the range of from 1.0 to 3.0; with the proviso that there is present at least one R^1 radical;

- (c) 10-45% wax;
- (d) 5-50% powder; and
- (e) 1-30% oil.

3. A composition according to claim 1 or claim 2, wherein the volatile solvent is a cyclic silicone having the formula:



wherein n is an integer of from 3-7; or a volatile linear polydimethylsiloxane having 2 to 9 silicon atoms and of the general formula:



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wherein n is an integer of from 0-7; or a C_8 - C_{20} isoparaffin; or mixtures thereof.

4. A composition according to claim 3, wherein the volatile solvent is itself comprised of a 10:1 to 1:10 ratio of cyclic silicones and C_{8-20} isoparaffins.

5. A composition according to any preceding claim, wherein the wax of component (C) has a melting point in the range of from 35-120°C.

6. A composition according to any preceding claim, wherein the wax of component (C) is synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax, spermaceti, stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax or bayberry wax, or a mixture thereof.

7. A composition according to any preceding claim, wherein the powder comprises a dry particulate matter having a particle size in the range of from 0.02-50 microns.

8. A composition according to any preceding claim, wherein the ratio of non-pigment powder to pigment in the powder is in the range of from 1:20 to 20:1, respectively.

9. A composition according to any preceding claim, wherein the oil comprises a low viscosity oil, a high viscosity oil or a mixture thereof wherein the low viscosity oil has a viscosity in the range of from 5 to 100 centipoise at 25°C and wherein the high viscosity oil has a viscosity in the range of from 200-1,000,000 centipoise at 25°C.

10. A composition according to any preceding claim, wherein the oil comprises a mixture of low viscosity and high viscosity oils in the ratio ranging from 1:15 to 15:1, respectively.

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11. A composition according to any preceding claim, wherein the oil incorporates a low viscosity surface oil selected from isotridecyl isononanoate, PEG-4 diheptanoate, isostearyl neopentanoate, tridecyl neopentanoate, cetyl octanoate, cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, cocodicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, dioctyl malate ester, octyldodecanol, or mixtures of octyldodecanol, acetylated lanolin alcohol, cetyl acetate, isododecanol and polyglyceryl-3-diisostearate, and mixtures of any of these.

12. A composition according to any preceding claim, wherein R is methyl.

13. A composition according to any preceding claim which further comprises an amorphous or atactic polypropylene having 50-100% atactic content, 0.1-15% crystallinity, and a molecular weight of 1,000-10,000.

14. A composition according to claim 13, wherein the atactic polypropylene is selected from the group consisting of an atactic polypropylene having a softening point of 20°C and a molecular weight of 2,000; an atactic polypropylene having a softening point of 135°C and a molecular weight of 5,600; and an atactic polypropylene having a softening point of 150°C and a molecular weight of 4,400.

15. A composition according to any preceding claim, wherein the cyclic silicone is cyclomethicone.

16. A composition according to any preceding claim, wherein the silicone ester wax is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate.

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17. A composition according to any preceding claim comprising:

- a) 35-60% volatile solvent which is itself comprised of a 10:1 to 1:10 ratio of cyclic silicones and C_{8-20} isoparaffins;
- b) 3-10% silicone ester wax which is lauryl trimethylolpropane siloxy silicate or isostearyl trimethylolpropane siloxy silicate, or a mixture thereof;
- c) 10-30% wax;
- d) 10-30% powder component comprising, by weight of the total composition, of 10-20% non-pigment powder and 1-10% pigment powder; and
- e) 5-20% mixture of low viscosity and high viscosity surface oils.

18. A composition according to any one of claims 1 to 15, wherein the silicone ester wax has a melting point of from 40 to 90°C.

19. A cosmetic such as a concealer, blusher, eye shadow, foundation or lipstick, which cosmetic comprises a composition according to any preceding claim in association with a suitable receptacle therefor.

20. A method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic according to any preceding claim.

21. A process for preparing a cosmetic composition according to any preceding claim, which process comprises bringing into intimate physical admixture

- (a) 1-70% volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°;

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- (b) 0.1-15% silicone ester wax;
- (c) 10-45% wax having a melting point in the range of
from 35 to 120°C;
- (d) 5-50% powder; and
- (e) 1-30% oil

and, if desired, allowing the mixture so produced to set in
a mould.



ABSTRACT

Cosmetic Compositions with Improved Transfer Resistance

A cosmetic composition comprising:

- a) 1-70% volatile solvent;
- b) 0.1-15% silicone resin;
- c) 10-45% wax;
- d) 5-50% powder; and
- e) 1-30% oil

has improved transfer resistance over previously-known cosmetics. They may be prepared by grinding some of the dry components with the solvent and resin, adding the wax and oil followed by the remainder of the dry components. When filled into suitable receptacles, the composition may be used as a concealer, blusher, eye shadow, foundation, lipstick or the like.

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This invention therefore provides a cosmetic composition comprising oil, wax and powder, and optionally other excipients, characterised in that the composition 5 comprises, by weight of the total composition,

- (a) 1-70% volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C and selected from the group consisting of volatile silicones, C₈₋₂₀ isoparaffins, and mixtures thereof,
- 10 (b) 0.1-15% silicone ester wax of the general formula:



wherein R is hydrogen or methyl, R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a + b has an average value substantially in the range of from 1.0 to 3.0 with the proviso that there is present at least one R¹ radical;

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- 25 (c) 10-45% wax selected from the group consisting of synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax,
- 30 spermaceti, stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax or bayberry wax, or a mixture thereof;

- (d) 5-50% powder comprising a dry particulate matter having a particle size in the range of from 0.02-50 microns, wherein the ratio of non-pigment powder to pigment in the powder is in the range from 1:20 to 20:1, respectively; and
- 35

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(e) 1-30% oil.

5 The composition of the invention provides a cosmetic composition which exhibits superior transfer resistance when compared with hitherto-known cosmetics.

10 In component (a), the term "volatile" means that the solvent has a measurable vapour pressure. The volatile solvents of the invention generally have a low viscosity, ranging from about 0.5 to 20 centipoise at 25°C. Volatile solvents suitable for use in the compositions of the invention

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described in association with a suitable receptacle therefor.

5 The present invention further provides a method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic as hereinbefore described.

10 The present invention further provides a process for preparing a cosmetic composition as hereinbefore described, which process comprises bringing into intimate physical admixture

15 (a) 1-70% of a volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C and selected from the group consisting of volatile silicones, C₈₋₂₀ isoparaffins, and mixtures thereof,

20 (b) 0.1-15% silicone ester wax of the general formula:



wherein R is hydrogen or methyl, R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a + b has an average value substantially in the range of from 1.0 to 3.0 with the proviso that there is present at least one R¹ radical;

30

(c) 10-45% wax having a melting point in the range of from 35 to 120°C and selected from the group consisting of synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax, spermaceti, stearyl alcohol, bran wax, capok wax,

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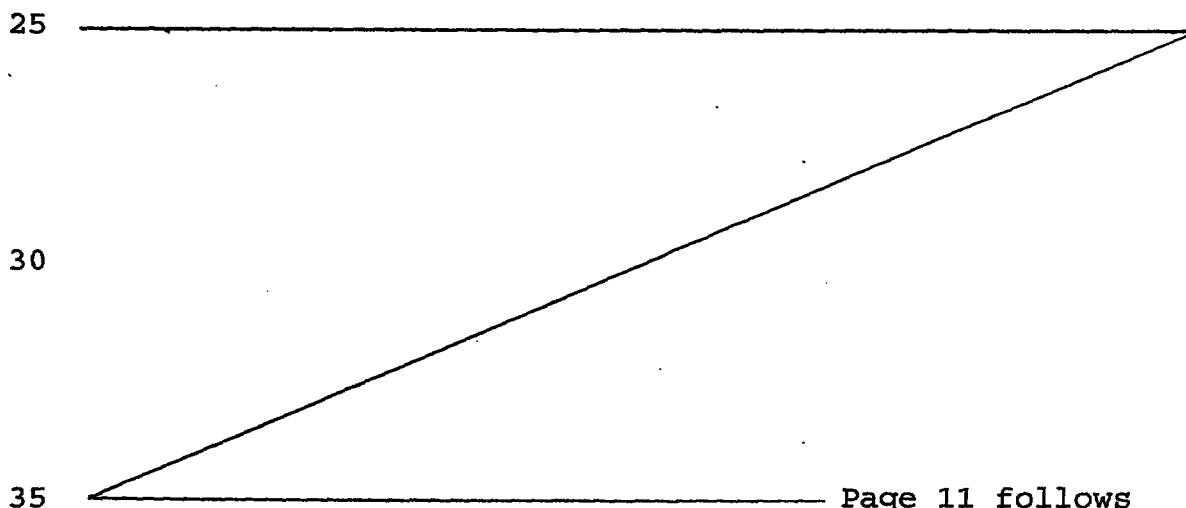
sugar cane wax, montan wax, whale wax or bayberry wax, or a mixture thereof;

- 5 (d) 5-50% powder comprising a dry particulate matter having a particle size in the range of from 0.02-50 microns, wherein the ratio of non-pigment powder to pigment in the powder is in the range of from 1:20 to 20:1, respectively; and

- 10 (e) 1-30% oil

The cosmetic compositions according to the invention provide a novel finish which exhibits superior transfer resistance when compared with hitherto-known cosmetic
15 compositions. The term "superior transfer resistance" means that when the cosmetic composition is applied to skin or lips it exhibits from 10-100%, preferably 30-100%, improvement in transfer resistance when compared with a hitherto-known formulation. When the cosmetic is a
20 lipstick, transfer resistance can be measured by the "Kiss Test" as described in Example 4.

The invention will be further illustrated by the following examples.



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CLAIMS

1. A cosmetic composition comprising oil, wax and powder,
5 and optionally other excipients, characterised in that the
composition comprises, by weight of the total composition,

- (a) 1-70% volatile solvent having a viscosity
substantially in the range of from 0.5 to 20
centipoise at 25°C and selected from the group
10 consisting of volatile silicones, C₈₋₂₀
isoparaffins, and mixtures thereof,
(b) 0.1-15% silicone ester wax of the general
formula:



wherein R is hydrogen or methyl, R¹ is an
20 ester-containing radical having at least 12
carbon atoms, a is an integer of from 0 to 3
inclusive, and b is such that the sum of a + b
has an average value substantially in the range
of from 1.0 to 3.0 with the proviso that there is
25 present at least one R¹ radical;

- (c) 10-45% wax selected from the group consisting of
synthetic wax, ceresin, paraffin, ozokerite,
illipe butter, beeswax, carnauba,
microcrystalline, lanolin, lanolin derivatives,
30 candelilla, cocoa butter, shellac wax,
spermaceti, stearyl alcohol, bran wax, capok wax,
sugar cane wax, montan wax, whale wax or bayberry
wax, or a mixture thereof;
(d) 5-50% powder comprising a dry particulate matter
35 having a particle size in the range of from
0.02-50 microns, wherein the ratio of non-pigment
powder to pigment in the powder is in the range



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of from 1:20 to 20:1, respectively; and

(e) 1-30% oil.

- 5 2. A cosmetic composition comprising oil, wax and powder, and optionally other excipients, characterised in that the composition comprises, by weight of the total composition,

10 (a) 1-70% volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25°C and selected from the group consisting of volatile silicones, C₈₋₂₀ isoparaffins, and mixtures thereof,

15 (b) 0.1-15% silicone ester wax of the general unit formula:



wherein R is hydrogen or methyl; R¹ is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive; b is an integer of from 0 to 3 inclusive, and the sum of a + b has an average value substantially in the range of from 1.0 to 3.0; with the proviso that there is present at least one R¹ radical;

25

30 (c) 10-45% wax selected from the group consisting of synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax, spermaceti, stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax or bayberry

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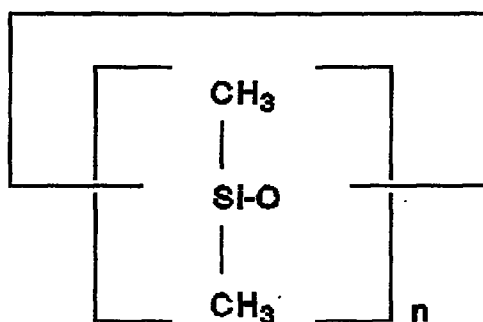
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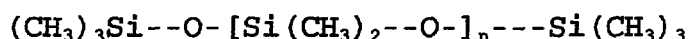
wax, or a mixture thereof;

- (d) 5-50% powder comprising a dry particulate matter
 5 having a particle size in the range of from 0.02-
 50 microns, wherein the ratio of non-pigment
 powder to pigment in the powder is in the
 range from 1:20 to 20:1, respectively; and
 (e) 1-30% oil.

- 10 3. A composition according to claim 1 or claim 2,
 wherein the volatile solvent is a cyclic silicone having
 the formula:



- 15 wherein n is an integer of from 3-7; or a volatile linear
 polydimethylsiloxane having 2 to 9 silicon atoms and of the
 general formula:



- wherein n is an integer of from 0-7; or a C₈-C₂₀ isoparaffin;
 20 or mixtures thereof.

4. A composition according to claim 3, wherein the
 volatile solvent is itself comprised of a 10:1 to 1:10
 ratio of cyclic silicones and C₈₋₂₀ isoparaffins.

5. A composition according to any preceding claim,
 25 wherein the wax of component (C) has a melting point in the
 range of from 35-120°C.

6. A composition according to any preceding claim,
 wherein the oil comprises a low viscosity oil, a high
 viscosity oil or a mixture thereof wherein the low

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viscosity oil has a viscosity in the range of from 5 to 100 centipoise at 25°C and wherein the high viscosity oil has a 5 viscosity in the range of from 200-1,000,000 centipoise at 25°C.

7. A composition according to any preceding claim, wherein the oil comprises a mixture of low viscosity and high viscosity oils in the ratio ranging from 1:15 to 15:1, 10 respectively.

8. A composition according to any preceding claim, wherein the oil incorporates a low viscosity surface oil selected from isotridecyl isononanoate, PEG-4 diheptanoate, isostearyl neopentanoate, tridecyl neopentanoate, cetyl 15 octanoate, cetyl palmitate, cetyl ricinoleate, cetyl stearate, cetyl myristate, cocodicaprylate/caprate, decyl isostearate, isodecyl oleate, isodecyl neopentanoate, isohexyl neopentanoate, octyl palmitate, dioctyl malate, tridecyl octanoate, myristyl myristate, dioctyl malate 20 ester, octyldodecanol, or mixtures of octyldodecanol, acetylated lanolin alcohol, cetyl acetate, isododecanol and polyglyceryl-3-diisostearate, and mixtures of any of these.

9. A composition according to any preceding claim, wherein R is methyl.

25 10. A composition according to any preceding claim which further comprises an amorphous or atactic polypropylene having 50-100% atactic content, 0.1-15% crystallinity, and a molecular weight of 1,000-10,000.

11. A composition according to claim 10, wherein the 30 atactic polypropylene is selected from the group consisting of an atactic polypropylene having a softening point of 20°C and a molecular weight of 2,000; an atactic polypropylene having a softening point of 135°C and a molecular weight of 5,600; and an atactic polypropylene having a softening 35 point of 150°C and a molecular weight of 4,400.

12. A composition according to any preceding claim, wherein the cyclic silicone is cyclomethicone.

13. A composition according to any preceding claim, wherein the silicone ester wax is lauryl trimethylolpropane



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siloxo silicate or isostearyl trimethylolpropane siloxo silicate.

5 14. A composition according to any preceding claim comprising:

- a) 35-60% volatile solvent which is itself comprised of a 10:1 to 1:10 ratio of cyclic silicones and C₈₋₂₀ isoparaffins;
- 10 b) 3-10% silicone ester wax which is lauryl trimethylolpropane siloxo silicate or isostearyl trimethylolpropane siloxo silicate, or a mixture thereof;
- c) 10-30% wax;
- 15 d) 10-30% powder component comprising, by weight of the total composition, of 10-20% non-pigment powder and 1-10% pigment powder; and
- e) 5-20% mixture of low viscosity and high viscosity surface oils.

20 15. A composition according to any one of claims 1 to 12, wherein the silicone ester wax has a melting point of from 40 to 90°C.

16. A cosmetic such as a concealer, blusher, eye shadow, foundation or lipstick, which cosmetic comprises a
25 composition according to any preceding claim in association with a suitable receptacle therefor.

17. A method for making-up skin or lips, which method comprises topical administration of a composition or cosmetic according to any preceding claim.

30 18. A process for preparing a cosmetic composition according to any preceding claim, which process comprises bringing into intimate physical admixture

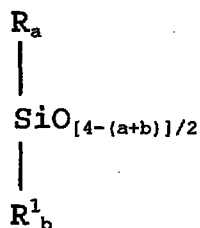
- (a) 1-70% volatile solvent having a viscosity substantially in the range of from 0.5 to 20 centipoise at 25° and selected from the group
35 consisting of volatile silicones, C₈₋₂₀ isoparaffins, and mixtures thereof,
- (b) 0.1-15% silicone ester wax of the general formula:



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wherein R is hydrogen or methyl, R^1 is an ester-containing radical having at least 12 carbon atoms, a is an integer of from 0 to 3 inclusive, and b is such that the sum of a + b has an average value substantially in the range of from 1.0 to 3.0 with the proviso that there is present at least one R^1 radical;

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- (c) 10-45% wax having a melting point in the range of from 35 to 120°C and selected from the group consisting of synthetic wax, ceresin, paraffin, ozokerite, illipe butter, beeswax, carnauba, microcrystalline, lanolin, lanolin derivatives, candelilla, cocoa butter, shellac wax, spermaceti, stearyl alcohol, bran wax, capok wax, sugar cane wax, montan wax, whale wax or bayberry wax, or a mixture thereof;

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- (d) 5-50% powder comprising a dry particulate matter having a particle size in the range of from 0.02-50 microns, wherein the ratio of non-pigment powder to pigment in the powder is in the range from 1:20 to 20:1, respectively; and

- (e) 1-30% oil

30 and, if desired, allowing the mixture so produced to set in a mould.

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