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(72) Inventors JEAN BOULOGNE MICHEL GUILLON and **CHRISTOS PAPANTONIOU**

(54) LIPSTICKS

(22) Filed 1 July 1977

We, L'OREAL, a French Body (71)Corporate, of 14 Rue Royale, Paris 75008, France, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:-

The present invention relates to a new cosmetic composition for making-up, which

is in the form of a lipstick.

We have already proposed to use, for the production of make-up products and especially of lipsticks, certain polymers and especially homopolymers of vinyl esters or acrylic esters, as well as copolymers of vinyl esters.

In fact, it has been found that using a certain percentage of such polymers in these products, it is possible to improve the firmness of the sticks, and to impart gloss and better adhesion as well as good persistence of the film deposited on the lips.

However, these lipstick compositions exhibit certain disadvantages, especially a migration of the dyestuffs into the corners

of the lips.

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We have now found, according to the present invention, that it is possible to avoid or reduce these disadvantages, which affect the aesthetic appearance, by linking the polymers previously proposed with a particular type of glyceryl ester-ether or glycol ether. In fact, by the combined use of these materials in a lipstick it is possible to

prevent the migration of the dyestuffs into the corners of the lips and moreover further to increase the gloss of the film thus deposited on the lips.

The present invention provides a lipstick

which essentially contains:

(i) at least one lipo-soluble polymer containing vinyl ester-derived units,

(ii) at least 10% by weight of 1-docosanoyloxy - 3 - (2 - ethyl) - hexyloxy propan-2-ol or a product of the average formula:

R - 0 - CH₂ - CH - 0 - H

in which R represents the radical derived from the alcohols of lanolin (lanolin alcohol), R' represents $C_{10}H_{21}$ and n is a number, especially about 1.5, i.e, a product obtained by reacting 11,12-epoxydodecane with lanolin alcohol,

(iii) at least one fatty substance and (iv) at least one non-toxic dyestuff.

The 1-docosanoyloxy-3 - (2-ethyl) - hexoxy-propan-2-ol which, in admixture with the polymer, prevents the migration of the dyestuffs into the corners of the lips, and has the following formula:

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This compound, which is novel can be obtained by reacting behenic acid (or docosanoic acid) with glycidyl 2-ethyl-hexyl ether. The reaction is suitably carried out in

the presence of a basic catalyst such as sodium methylate or sodium ethylate and at a temperature of the order of 130°C for, say, 2 to 8 hours.



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The product can be isolated from the reaction mixture after several washes with water and after neutralisation with a base, and is then dried under reduced pressure. The volatile products can be removed at about 130°C/10⁻³ mm Hg and the desired product can then be distilled at about 205°C/10⁻³ mm Hg. This product is solid at ambient temperature and has a final melting point of the order of 25° to 40°C.

point of the order of 35° to 40°C.

The products of formula (I) which likewise prevent the migration of the dyestuffs can be obtained by reacting 11,12-epoxy-dodecane with lanolin alcohol in the presence of boron trifluoride (BF₃). The reaction is conveniently conducted at a temperature of about 80°C for, say, 1 to 2 hours. The product can be isolated after neutralisation and washing with water.

The product in which n is about 1.5 is novel; it is in the form of a slightly yellow soft wax having a melting point of about 40°C.

As indicated above, the 1-docosanoyloxy - 3 - (2-ethyl) - hexoxy-propan-2-ol or product of formula (I) is present in the composition at a concentration of at least 10% but preferably 10 to 30% (by weight).

These compounds partly replaces the fatty substance which may be either a wax, an oil or a mixture of a wax and an oil.

According to this invention, the fatty substance is generally present in an amount from 35 to 75%.

Amongst the waxes which can be used as the fatty substance, there may in particular be mentioned ozocerites, lanolin, lanolin alcohol, hydrogenated lanolin, acetylated lanolin, lanolin wax, beeswax, candellila wax, micro-crystalline wax, carnauba wax, cetyl alcohol, stearyl alcohol, spermaceti, cacao butter, the fatty acids of lanolin, petrolatum, white petroleum jellies, monoglycerides, diglycerides and triglycerides which are solid at 25°C, fatty esters which are solid at 25°C, silicon waxes such as methyloctadecanoxy-polysiloxane and poly -(dimethylsiloxy) stearoxysiloxane, stearyl monoethanolamide, colophony and its derivatives such as glycol abietate and glycerol abietate, hydrogenated oils which are solid at 25°C, sucro-glycerides and the oleates, myristates, lanolates, stearates and dihydroxy-stearates of calcium, magnesium, zirconium and aluminium.

Amongst the oils which can be used as fatty substances there may in particular be mentioned paraffin oil, purcellin oil, perhydrosqualene, sweet almond oil, avocado oil, calophyllum oil, castor oil, caballine oil, lard oil, olive oil, mineral oils having a boiling point of 310 to 410°C, silicone oils such as dimethylpolysiloxanes,

linoleyl alcohol, linolenyl alcohol, oleyl alcohol, cereal germ oil such as wheat germ oil, isopropyl lanolate, isopropyl palmitate, isopropyl myristate, butyl myristate, cetyl myristate, hexadecyl stearate, 2-ethylhexyl stearate, butyl stearate, octyl hydroxy stearate, decyl oleate, acetyl-glycerides, octanoates and decanoates of alcohols and of poly-alcohols such as of glycol and glycerol, ricinoleates of alcohols and of poly-alcohols such as cetyl ricinoleate, isostearyl alcohol, isocetyl lanolate, isopropyl adipate, hexyl lanolate and octyl-dodecanol.

It is also possible to use as waxes or as oils, according to the invention, the derivatives of 1,2-alkanediols and especially the esters of 1,2-alkanediols with fatty acids such as those described in our British Specification No. 1,514,287 or one of the compounds described in British Specification Nos. 1,431,153 and 1,516,195.

The polymers having vinyl ester units which can be used in the lipsticks according to the present invention must be liposoluble, that is to say must have a high affinity for waxes and oils. As indicated above, these polymers are either homopolymers or copolymers and are generally present in the composition at a concentration of 10 to 35% by weight. Amongst the homopolymers there may in particular be mentioned those resulting from the homopolymerisation of vinyl hexanoate, of vinyl 2,2-dimethyl-pentanoate, of vinyl octanoate, of vinyl cekanoates (cekanoic acid being the tradename of a mixture of linear and branched fatty acids having the same number of carbon atoms, namely 8, 9 or 10), of vinyl laurate, of vinyl stearate and of vinyl isostearate.

Amongst the copolymers, there may in particular be mentioned those resulting from the copolymerisation of vinyl acetate with allyl stearate, of vinyl acetate with vinyl laurate, of vinyl acetate with vinyl stearate, of vinyl acetate with octadecene, of vinyl acetate with octadecyl vinyl ether, of vinyl propionate with allyl laurate, of vinyl propionate with vinyl laurate, of vinyl stearate with 1-octadecene, of vinyl acetate with 1-dodecene, of vinyl stearate with ethyl vinyl ether, of vinyl propionate with cetyl vinyl ether, of vinyl stearate with allyl acetate, of vinyl 2,2-dimethyl-octanoate with vinyl laurate, of allyl 2,2-dimethylpentanoate with vinyl laurate, of vinyl dimethylpropionate with vinyl stearate, of allyl dimethylpropionate with vinyl stearate, of vinyl propionate with vinyl stearate, of vinyl dimethylpropionate with vinyl laurate and of allyl propionate with allyl stearate.

These copolymers can optionally be crosslinked by means of a crosslinking agent, which has the effect of increasing the

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	molecular weight. Amongst these	335 g of benefite (or docosanoic) acid (1.000	05
± *	crosslinking agents there may in particular be mentioned tetraallyloxy-ethane,	mols) which have been fused in a flask, and the temperature is then raised to 130°C	
5 $^\circ$		under nitrogen. Thereafter, 186 g (1 mol) of 2-ethylhexyl	
7.49	divinyl dodecanedioate and divinyl octadecanedioate.	glycidyl ether are added dropwise, whilst	70
	Preferably, these homopolymers and	stirring, and after the end of the addition the	
	copolymers have a molecular weight of	mixture is heated under nitrogen for 6 hours	
	2,000 to 500,000 and preferably 6,000 to	at 130°C.	
10 🖁	300,000.	The extent of the reaction is determined	
	These homopolymers and copolymers of	by measuring the residual acid number. The	75
	vinyl esters are described in detail in our	reaction is continued until the degree of	
	British Specifications Nos. 1,476,194 and	conversion is about 95%.	
	1,476,195.	The product thus obtained is washed once	
15	The dyestuffs employed in the	with 500 ml of boiling water containing the	
智度	compositions according to the invention are	amount of sodium hydroxide required to	80
	of course non-toxic; they are those used	neutralise the residual acidity.	
	commonly in lipsticks. They are in general	After the water, 200 ml of isopropanol are	
	present in an amount from 2 to 30%.	added to improve the phase separation. The	
	Amongst them there may be mentioned the	product is then washed twice with water at	0.5
Q2 (80°C (about 500 ml per wash).	85
	fluorescein (bromo-acids), and especially	The product is then dried in vacuo, whilst	
120	those known under the names of D and C	stirring, on a boiling waterbath.	
25	Red No. 21, D and C Red No. 27 and D and	Thereafter, the product is purified by	
23	C Orange No. 5, inorganic pigments such as	molecular distillation. 1) The volatile products are removed at	90
	iron oxides, chromium oxides, ultramarines (polysulphides of aminosilicates), titanium	130°C under 10 ⁻³ mm Hg	90
, h	dioxides, and organic pigments such as D	2) The product is distilled at 205°C under	
' ar	and C Red No. 36 and D and C Orange No.	10 ⁻³ mm Hg,	
30 -	17.	Distillation yield: 78%	
*	Finally, amongst the dyestuffs there may	Overall yield: 67%	95
1	also be included the lakes such as the	C versus grane 1.70	
17	calcium lakes of D and C Red No. 6, 7, 21	Analyses:	
	and 27, the barium lakes of D and C Red	Saponification number:	
35	No. 6 and 9, the Al lakes of D and C Red	theory: 1.98 milliequivalents/g	
	No. 21 and 27 and D and C Yellow No. 5	found: 2.0 milliequivalents/g	
	and 6, and the zirconium lakes of D and C	Hydroxyl number:	100
	Red No. 21 and of D and C Orange No. 5.	theory: 1.98 milliequivalents/g	
	Of course, the compositions according to	found: 1.85 milliequivalents/g	
40	the invention can also contain other	Acid number: zero Final melting point: 35°C.	
	conventional ingredients such as, for	rmai mennig point. 35 C.	
	example, pearlescent agents, suitably in an	Preparation of a product of formula (I)	105
	amount of 2 to 20%, perfumes, anti-sunburn	5.2 ml. of a BF /ether complex was added	100
46	agents, antioxidants and preservatives. Suitable pearlescent agents include	to 740 g (2 mols) of lanolin alcohol which	
45	bismuth oxychloride, mica-, titania and	had been previously melted at about 80°C.	
ide di	guanine crystals.	552 g (3 mols) of 11,12-epoxydodecane is	
	Amongst the antioxidants there may in	then added drop by drop over about 1 hour.	110
	particular be mentioned those of the	The temperature is maintained at 80°C. for	
50		about 10 minutes after the end of the	
ĥ	dodecyl esters of gallic acid, butylated	addition to ensure that all the epoxide	
	hydroxyanisole, butylated hydroxy-toluene	added has been consumed.	115
	and nordihydroguaiaretic acid.		115
2	In certain cases, it is also desirable or	water containing the necessary quantity of soda to neutralise the acidity due to the	
55	necessary to use certain solvents for the	presence of the catalyst. The organic phase	
÷	dyestuffs which are insoluble in the fatty	separated after decantation is washed again	
4.4	substances. Amongst these solvents there	three times with hot water.	120
3	may be mentioned the glycols, the tetrahydrofurfuryl esters, the polyethylene	The product is then taken up in its own	.20
60	glycols and the monoalkanolamides.	weight of water and the material distilled to	
60	grycois and the monoarkanolamides.	eliminate extracted impurities and then the	
	Preparation of 1 - docosanoyloxy - 3 - (2 -	product is dehydrated completely under	
J2-	ethyl) - hexoxy - propan 2 ol	reduced pressure.	125
- 25	2.9 g of sodium methylate powder (50	One thus obtains a product of formula (I)	
	milliequivalents) are added, whilst stirring, to	in the form of a soft slightly yellow wax.	

4		1,569	9,009		4
	Melting point=40°C. OH Index= (theory: 1.55). The following Examples furthe the present invention.		Ozocerite Lanolin Mineral oil	15 g 8 g 3 g	60
5	Examples of Lipsticks Example 1 A lipstick is prepared, according invention, by mixing the ingredients:	ling to the	Oleyl alcohol Triglycerides Castor oil Butylated hydroxytoluene Copolymer of 31.3% of vinyl acetate and 68.7% of allyl	3 g 5 g 3 g 8.4 g 0.1 g	65
10	Microcrystalline wax Acetylated lanolin Lanolin Hydrogenated lanolin	12 g 5.9 g 10 g 10 g	stearate Homopolymer of vinyl laurate 1 - Docosanoyloxy - 3 - (2 - ethyl) - hexoxy - propan - 2 - ol	10 g 10 g	70
15	Lanolin alcohols Butylated hydroxy-anisole Copolymer of 31.3% of vinyl acetate and 68.7% of allyl	11 g 0.1 g	Colorants: Al lake of D and C Red 27 Ca lake of D and C Red 7 D and C Red 36	15 g 1 g 1 g 1 g	75
20	stearate Homopolymer of vinyl laurate 1 - Docosanoyloxy - 3 - (2 - ethyl) - hexoxy - propan - 2 - ol	8 g 15 g	D and C Red 6 Al lake of D and C Yellow 5 Mica-titania Perfume	6 g 1 g 11 g 1.5 g	80
25	Colorants: Titanium oxide Al lake of D and C Red 27 D and C Red 36 Al lake of D and C Yellow 6 Perfume	15 g 1 g 7.5 g 1 g 2.5 g 1 g	Example 4 A lipstick is prepared, accordinvention, by mixing the ingredients:	100 g ing to the following	85
30	A lipstick is prepared, accord invention, by mixing the ingredients:	100 g ing to the following	Microcrystalline wax Liquid lanolin Mineral oil Acetylated lanolin Hydrogenated palm oil	8 g 10 g 4 g 6.9 g 6 g	90
35	Microcrystalline wax Acetylated lanolin Oleyl alcohol Liquid lanolin	9 g 9 g 11 g	Compound of the formula R—COOCH ₂ —CH—R'	5 g	
40	Mineral oil Butylated hydroxytoluene Copolymer of 31.3% of vinyl acetate and 68.7% of allyl stearate	8 g 10.9 g 0.1 g	R=C ₁₅ H ₃₁ Melting point=55—60 R'=C ₁₂ /C ₁₄ Butylated hydroxyanisole Copolymer of 31.3% of vinyl acetate and 68.7% of allyl	°C 0.1 g	95
45	Homopolymer of vinyl laurate 1 - Docosanoyloxy - 3 - (2 - ethyl) - hexoxy - propan - 2 - ol	11 g 20 g	stearate Homopolymer of vinyl laurate 1 - Docosanoyloxy - 3 - (2 ethyl) - hexoxy - propan - 2 - ol	15 g 10 g	100
50	Zirconium lake of D and C red 21 Calcium lake of D and C Red 6 D and C Red 36 Al lake of D and C Yellow 6 Perfume	3.5 g 3.5 g 0.2 g 1.5 g 1.5 g 0.8 g	Colorants Titanium oxide Al lake of D and C Red 27 D and C Red 30 Al lake of D and C Yellow 6 Bi oxychloride Perfume	C	105
55	-	100 g		100 g	
	Example 3 A lipstick is prepared, according to the		Example 5 A lipstick is prepared, according to the		

A lipstick is prepared, according to the invention, by mixing the following ingredients:

A lipstick is prepared, according to the invention, by mixing the following ingredients:

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4.35 g 4.35 g 4.35 g

Butyl ricinoleate

Aceto glyceride

Oleic alcohol Liquid lanolin

Acetylated lanolin

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13 g 4.35 g

Polyvinyl laurate Polyethylene grease Product of formula (I) such as prepared in the above

9.5 g 95

7 g

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Example

		1,50	7,007	6
	Compound of the formula:		(ii) at least 10% by weight of 1-	
	P COOCH OH P	2.5 -	docosanoyloxy - 3 - (2 - ethyl) - hexyloxy -	50
	R—COOCH ₂ —CH—R'	3.5 g	propan - 2 - ol or a product obtained by	
	О́Н		reacting 11,12-epoxydodecane with the	
	Оп		alcohols of lanolin,	
	$R = C_{15}H_{31}$		(iii) at least one fatty substance and (iv) at least one non-toxic dyestuff.	55
	$R'=C_{12}/C_{14}$		2. A lipstick according to claim 1 in which	55
	R = C ₁₂ / C ₁₄		the polymer is a homopolymer of vinyl	
5	Lanolin	9.0 g	hexanoate, vinyl 2,2-dimethyl-pentanoate,	
	Acetylated lanolin	9.5 g	vinyl octanoate, vinyl cekanoates, vinyl	
	Mineral oil	9.5 g	laurate, vinyl stearate or vinyl isostearate.	60
	Polyethylene wax	3.5 g	3. A lipstick according to claim 1 in which	
	Tertiary-butyl anisole	0.1 g	the polymer is a copolymer of: vinyl acetate	
10	Butyl ricinoleate	6.4 g	with allyl stearate, vinyl acetate with vinyl	
	Octyl-hydroxystearate	6.5 g	laurate, vinyl acetate with vinyl stearate,	
			vinyl acetate with octadecene, vinyl acetate	65
	Colourants:	2 -	with octadecyl vinyl ether, vinyl propionate	
	Titanium oxide	2 g 2 g	with allyl laurate, vinyl propionate with	
15	Al Laque D and C red 27 Ca Laque D and C red 7	2 g 1 g	vinyl laurate, vinyl stearate with 1-octadecene, vinyl acetate with 1-dodecene,	
••	D and C red 6	3 g	vinyl stearate with ethyl vinyl ether, vinyl	70
	Perfume	0.5 g	propionate with cetyl vinyl ether, vinyl	70
			stearate with allyl acetate, vinyl 2,2-	
		100 g	dimethyl-octanoate with vinyl laurate, allyl	
		_	2,2-dimethyl-pentanoate with vinyl laurate,	
20	Example 9		vinyl dimethylpropionate with vinyl	75
20	A lipstick is prepared by mi	xing the	stearate, allyl dimethylpropionate with vinyl	
	following ingredients:		stearate, vinyl propionate with vinyl	
	Polyvinyl laurate	28 g	stearate, vinyl dimethylpropionate with	
	Copolymer of 31.3% of vinyl	8	vinyl laurate or allyl propionate with allyl	
	acetate and 68.7% of allyl		stearate. A linetick according to any one of the	80
25	stearate	4.8 g	4. A lipstick according to any one of the preceding claims in which the polymer is	
	Polyethylene grease	33 g	one which has been cross-linked with	
	1 - Docosanoyloxy - 3 - (2 -		tetraallyloxyethane, divinylbenzene, divinyl	
	ethyl) - hexyloxy - propan -	10.2 -	octanedioate, divinyl dodecanedioate or	85
20	2 - 01	19.3 g	divinyl octadecanedioate.	
30	Compound of the formula:		5. A lipstick according to any one of the	
	R COO—CH ₂ —CH—R'	1 g	preceding claims in which the polymer is	
	R 600—6112—611—R		present in an amount from 10 to 35% by	
	ÓН		weight.	90
			6. A lipstick according to any one of the	
	$R = C_{15}H_{31}$ $R' = C_{12}/C_{14}$ Melting point 55—60°	C	preceding claims, characterised in that the	
	$R' = C_{12}/C_{14}$ When the point 33—60	C	1 - docosanoyloxy - 3 - (2 - ethyl) - hexoxy - propane - 2 - ol or the product	-
			obtained from 11,12-epoxydode cane and	0.5
25	Tertiary-butyl anisole	0.1 g	lanolin alcohol is present in an amount from	95
35	Acetylated lanolin	4.8 g	10 to 30% by weight.	
	Mineral oil	4.8 g	7. A lipstick according to any one of the	
	Colourants:		preceding claims in which the fatty	
	Al Laque D and C red 21	0.6 g	substance is at least one wax or at least one	100
	D and C red 36	0.3 g	oil or a mixture of at least one wax and at	
40	D and C red 30	0.5 g	least one oil.	
	D and C red 13	0.2 g	8. A lipstick according to claim 7 in which	
	Al Laque D and C yellow 5	2 g	the fatty substance is present in an amount	
	Perfume	0.6 g	of from 35 to 75% by weight.	105
			9. A lipstick according to any one of the	
		100 g	preceding claims in which the non-toxic dyestuff is present in an amount from 2 to	
			30% by weight.	
45	WHAT WE CLAIM IS:-		10. A lipstick according to any one of the	110
	1. A lipstick, which contains:		preceding claims which also contains one or	110
	(i) at least one lipo-soluble	polymer	more pearlescent agents, perfumes, anti-	
	containing vinyl ester-derived unit	s,	sunburn agents, antioxidants, preservatives,	
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or solvents for the dyestuff if the latter is insoluble in the fatty substance.

11. A lipstick according to any one of the preceding claims in which the product obtained from 11,12-epoxydodecane and lanolin alcohol has the average formula:

$$R - O = \begin{bmatrix} CH_2 - CH - O \\ I \\ R^I \end{bmatrix}$$

in which R represents a radical derived from the alcohols of lanolin, R' represents $C_{10}H_{21}$ and n is about 1.5.

12. A lipstick according to any one of claims 1 to 10 in which component (ii) is 1-docosanoyloxy-3 - (2-ethyl) - hexyloxy-propan-2-ol.

13. A lipstick according to claim 1 substantially as hereinbefore described.

14. A lipstick according to claim 1 substantially as described in any one of Examples 1 to 9.

J. A. KEMP & CO., Chartered Patent Agents, 14 South Square, Gray's Inn, London, WC1R 5EU.

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