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(57) Abstract

A cosmetic composition for forming a peelable skin mask is provided based on a combination of polyvinyl alcohol and a hydrophobically-modified acrylate or methacrylate polymer. Most effective is a combination of two weight grades of polyvinyl alcohol, a low weight grade having a number average molecular weight ranging from 15,000 to 27,000 and a high weight grade having a number average molecular weight ranging from 44,000 to 65,000. The hydrophobically-modified acrylate or methacrylate polymer preferably is a copolymer formed from a carboxylic monomer and a C_8-C_{30} acrylate ester.

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COSMETIC COMPOSITION

The invention relates to a quick drying composition that when applied to the face will harden into a peelable mask for overnight treatment of skin.

Peelable facial masks are well-known in the cosmetic field. Normally such products are applied to the face in the form of a gel or paste. Upon evaporation of volatile solvent; the former gel or paste produces a film over the facial surface. After a certain period of contact, usually 15-30 minutes, the film is removed by washing with warm water or by being peeled off.

A mask is considered to have an absorption effect for removing unwanted oils from the stratum corneum. Removal of the mask is believed to assure deep cleansing of the skin, in particular of the horny layer of the epidermis. It also provides a state of hyper-hydration of the epidermis, resulting in an improvement in skin tone and texture.

Among the commercially available mask forming products is a clear gel from Revlon Corporation known as "Honey Masque". The listed contents include water, ethyl alcohol, polyvinyl alcohol/vinyl acetate copolymer, dimethicone copolyol, propylene glycol, PEG-8, honey, oleth-10 phosphate, fragrance, preservative and colours. The dry-down time (when the film becomes non-tacky) of this particular gel ranges from 15 to 30 minutes. A product sold by the Procter & Gamble Company under the trademark of "Noxzema® Deep Cleansing Mask" is based upon a polyvinyl alcohol film-forming material solubilized in ethanol; other ingredients include sorbitol, PEG-4 steareth-20, PEG-32, PEG-6, preservatives, fragrance, essential oils and colours. Dry-down time for this product is at least 15 minutes.

Masks currently marketed are not designed for nighttime use. A product used at night should dry-down quickly so that the product can be applied within five minutes before going to bed. If the product does not dry quickly, a user is required to be vigilant against contact that might disturb the maturating mask. An ideal product should dry quickly forming a protective crust that prevents the product from being rubbed off on the bed linen.

As noted above, polyvinyl alcohol films have been employed in commercial products. Not only is the dry-down time too slow but these films also do not adhere well to the skin. Polyvinyl alcohol films taught by the known art would fall off during the night.

U.S. Patent 4,640,932 (Fong et al) describes a facial mask based on inorganic thickening agents, absorbent powders and/or organic gelling agents. Suitable as gelling agents are gelatin, starch, cellulosic gums, guar gum, alginates and polyvinyl alcohols. Benzoyl peroxide is present as an active to control or at least mitigate acne vulgaris. Moreover, this product form is different, as it is intended to be immediately washed off. Neither does this type of product form a protective crust or rigid film, thereby rendering it impractical for use during the sleeping hours. U.S. Patent 5,026,552 (Gueret et al) discloses a mask formed from a mesh of woven fabric and a hydratable gel confined within holes of the mesh. Since the gel is confined, the mask can be pulled off all in one piece thereby performing a skin sloughing treatment.

U.S. Patent 5,194,253 (Garrido et al) describes a method of forming a cosmetic treatment mask based on at least one hydrophillic film-forming polymer, ammonium hyaluronic acid, mineral or organic salt of deoxyribonucleic acid and water. Drying times with this technology are also relatively slow.

The present invention provides a composition for forming a cosmetic mask comprising:

(i) one or more polyvinyl alcohol polymers having a number average molecular weight ranging from 5,000 to 200,000; and

(ii) a hydrophobically-modified acrylate or methacrylate polymer, the polyvinyl alcohol and hydrophobic acrylate or methacrylate polymer being present in a relative weight ratio of from 50:1 to 1:100.

Such a cosmetic mask is faster drying than similar products heretofore known in the art.

Cosmetic masks formed from compositions according to the invention provide improved adhesion to the skin and may deliver active ingredients to counteract the effects of acne, pimples, redness and blemishes. In the gel or paste form, cosmetic masks according to the invention have improved stability, especially under freeze/thaw cycle storage conditions.

Advantageously, the polyvinyl alcohol is present as a combination of low and high molecular weight materials of less than 30,000 and more than 40,000, respectively. Preferably, the number average molecular weights for the low and high materials may range from 15,000 to 27,000 and from 44,000 to 65,000, respectively.

The hydrophobically-modified polymer is preferably a copolymer having a major portion formed from a monoolefinically unsaturated carboxylic acid or anhydride monomer of 3 to 6 carbon atoms and a minor portion formed from a long chain acrylate or methacrylate ester monomer.

The present inventors have found that exceptionally short dry-down times of less than 15 minutes can be achieved with a selected combination of a film-forming and an adhesion promoting polymer. Indeed, with the special combination of polymers, the dry-down times are often less than five minutes.

Polyvinyl alcohols (PVA) contemplated for use in the present invention may suitably be selected from a polymer having a number average molecular weight ranging from 5,000 to 200,000. Advantageously, there will be present both a low and high molecular weight polyvinyl alcohol. The former can have a number average molecular weight of less than 30,000, but preferably ranging from 15,000 to 27,000. The latter may have a number average molecular weight of more than 40,000, but preferably it has a number average molecular weight ranging from 44,000 to 65,000. Representative of the low molecular weight range is a material known as Airvol 205S having a viscosity of 5.2-6.2 cps in 4% aqueous solution at 20°C. The high molecular weight material is commercially available as Airvol 523 having a viscosity of 23-27 cps in 4% aqueous solution at 20°C. Airvol products are available from the Air Products Company, Allentown, PA. The total amount of polyvinyl alcohol may suitably range from 2 to 40%, preferably from 10 to 20%, optimally between 12 and 15% by weight. Where both low and high molecular weight polyvinyl alcohols are present, the ratio of the two suitably range from 1:20 to 20:1, preferably from 1:10 to 1:1, optimally from about 1:5 to 1:3, respectively.

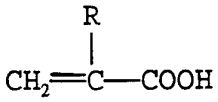
Dry PVA films tend not to adhere very well to skin. For an overnight product, the film should stay on the skin throughout the night. It has now been found that excellent adhesion can be achieved with a hydrophobically-modified acrylate or methacrylate polymer. This second critical component of the mask-forming composition is preferably a

copolymer formed from a carboxylic monomer in an amount of from 50 to 99% by weight and a long chain acrylate ester monomer in an amount of from 1 to 50% by weight. Amounts of the carboxylic monomer and the acrylate ester monomer are based on the combined weight of both components. It should be understood that more than one carboxylic monomer and more than one acrylate ester can be used in the monomer charge.

The above-mentioned copolymers can be prepared from a monomeric mixture containing two essential monomeric ingredients, each in certain proportions, one being a monomeric olefinically-unsaturated carboxylic monomer of 3 to 6 carbon atoms and the other being an acrylic ester having a long chain C_8-C_{30} aliphatic group. Optionally, there is included in the monomeric mixture a cross-linking monomer. The carboxylic monomer is generally in a major proportion whereas the acrylic ester is used in a minor proportion. In a preferred embodiment, the carboxylic monomer is present in an amount of from 80 to 99%, especially 90 to 98% by weight based on the two monomers, whereas the acrylate monomer is present in an amount of from 1 to 20%, especially 2 to 10% by weight, based on the weight of the two monomers.

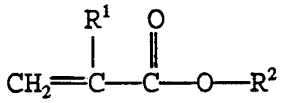
The copolymers of a carboxylic monomer and an acrylic ester having a long chain aliphatic group can have polymerized therein a minor proportion of a lower alkyl ester of acrylic acid, such as ethyl acrylate, generally in an amount of from 0-40% by weight, preferably from 5-30% by weight, based on the total monomer charge.

The preferred carboxylic monomers for use in the copolymer are the monoolefinic acrylic acids having the general structure:



wherein R is a substituent selected form the group consisting of hydrogen, halogen, hydroxyl, lactone, lactam, and the cyanogen (-C-N) groups, monovalent alkyl radicals, monovalent alkaryl radicals and monovalent cycloaliphatic radicals. Of this class, acrylic acid itself is most preferred because of its generally lower cost, ready availability, and ability to form superior polymers. Another particularly preferred carboxylic monomer is maleic anhydride.

The preferred acrylic ester monomers having long chain aliphatic groups are derivatives of acrylic acid represented by the formula:



wherein R^1 is selected from hydrogen, methyl and ethyl groups and R^2 is selected from alkyl groups having from 8 to 30 carbon atoms and oxyalkylene and carbonyloxyalkylene groups, preferably alkyl groups of 10 to 22 carbon atoms. The oxyalkylene and carbonyloxyalkylene groups are particularly oxyethylene and carbonyloxyethylene groups. Representative higher alkyl acrylic esters are decyl acrylate, lauryl acrylate, stearyl acrylate, behenyl acrylate and myristyl acrylate, and the corresponding methacrylates.

The copolymers described herein, when tested in the form of 0.2% aqueous mucilages, have viscosity of 100 to 50,000 cps, preferably 250 to 40,000 cps and especially 500 to 35,000 cps. In the form of 1.0% aqueous mucilages, they have viscosity of 1,000 to 100,000 cps, preferably 2,000 to

90,000 cps, and especially 2,500 to 85,000 cps. These viscosities are measured using a Brookfield RVT Model Viscometer at spindle speed of 20 rpm in the pH range of 7.2 to 7.6.

Commercially the copolymers as described above are available from the B.F. Goodrich Company under the trademark Pemulen TR-2®. The CTFA name is acrylates/C_{10}-C_{30} alkyl acrylate cross-polymer.

Amounts of the hydrophobically-modified acrylate or methacrylate polymer suitably range from 0.1 to 20%, preferably from 0.5 to 5%, more preferably from 1 to 2%, optimally between 1.35 and 1.5% by weight.

The total amount of polyvinyl alcohol to hydrophobically-modified acrylate or methacrylate polymer will generally range from 50:1 to 1:100, preferably from 20:1 to 1:1, optimally between 12:1 to 8:1, respectively.

Water will also be present in the compositions of the present invention. The amount of water will generally range from 10 to 70%, preferably from 30 to 55%, optimally between 35 and 45% by weight.

Since water is the primary vehicle for delivery of the film-forming polymer, the relative weight ratio can be of significance. The ratio of water to total polyvinyl alcohol generally ranges from 100:1 to 1:1, preferably from 10:1 to 2:1, optimally between 4:1 and 3:1 by weight.

Evaporative solvents may be employed to achieve the dry-down of the film-forming polymer onto the skin. Monohydric C_1-C_3 alkanols are most suitable with ethyl alcohol being preferred. The amount of monohydric alcohol may suitably range from 5 to 50%, preferably from 15 to 40%, optimally between 25 and 35% by weight.

Compositions of the present invention can include a variety of anti-irritancy agents. These may either be water-soluble or water-insoluble (i.e. oil-soluble). Among suitable water-soluble anti-irritancy agents are the salts of glycyrrhizinic acid, especially the alkalimetal and ammonium salts. Representative of the water-insoluble anti-irritancy agents are α-bisabolol (derived from chamomile) and azulene (derived from yarrow). These can be present either as natural extracts or synthetically derived materials generally ranging in amounts from 0.0001 to 5%, preferably from 0.001 to 1%, optimally between 0.01 to 0.5% by weight. Most especially preferred is dipotassium glycyrrhizinate. Amounts of this category of material may suitably range from 0.001 to 3%, preferably between 0.1 to 0.5%, optimally between 0.15 and 0.2% by weight.

Two classes of keratolytic agents may also be effectively used in compositions of the present invention. The first category is represented by C_7-C_{30} β-hydroxy carboxylic acids and their salts. Illustrative of this category is salicylic acid as well as the alkalimetal and ammonium salts thereof. Suitable amounts of salicylic acid or salt may range from 0.1 to 10%, preferably between 0.8 and 2.5%, optimally between about 1 and 1.5% by weight.

The second class of keratolytic agent is the C_1-C_{25} α-hydroxy alkanoic acids. Illustrative of this group of materials are glycolic, lactic, 2-hydroxyoctanoic acids and salts thereof. The salts may be selected from alkalimetal, ammonium and C_1-C_{20} alkyl or alkanol ammonium counterions. Levels of α-hydroxyalkanoic acids may suitably range from 0.1 to 10%, preferably between 0.2 and 1%, optimally between 0.4 and 0.5% by weight.

Antimicrobial agents may also be useful in compositions of the present invention. Typically the antimicrobial agent may be material such as triclosan tricarbanilide, tea tree

oil, farnesol, farnesol acetate, hexachlorophene, C_4-C_{20} quaternary ammonium salts such as benzolconium chloride and a variety of zinc or aluminum salts. Typically the zinc or aluminum salts are compounds such as zinc pyridinethione, zinc sulphate, zinc chloride, zinc phenolsulphonate, aluminum chloride, aluminum sulphate and aluminum chlorhydrate. Amounts of the astringent may suitably range from 0.1 to 5%, preferably from 0.2 to 1%, optimally 0.3% by weight.

A still further component of compositions according to the present invention may be C_1-C_{10} alkyl lactates. Most preferred is ethyl lactate which may suitably be present in amounts ranging from 0.01 to 5%, preferably between 0.5 and 3%, optimally between 1.5 and 2.5% by weight.

A variety of herbal extracts may be included as components of the composition. These extracts may include but are not limited to those of thyme, rosemary, myrrh, bitter orange, coltsfoot and sage. Each of these may generally range in an amount anywhere from 0.00001 to 2%, preferably between 0.01 and 0.5% by weight.

Compositions of the invention preferably also contain aloe extract to assist with skin adhesion. Aloe extract levels may conveniently range from 0.01 to 5%, preferably from 0.05 to 1%, optimally between 0.1 and 0.75% by weight.

Emollient materials in the form of silicone oils and synthetic esters may be incorporated into compositions of the present invention. Amounts of the emollients may suitably range anywhere from 0.1 to 30%, preferably between 1 and 20% by weight.

Silicone oils may be divided into the volatile and non-volatile variety. The term "volatile" as used herein refers to those materials which have a measurable vapor

pressure at ambient temperature. Volatile silicone oils are preferably chosen from cyclic or linear polydimethylsiloxanes containing from 3 to 9, preferably from 4 to 5, silicon atoms.

Linear volatile silicone materials generally have viscosities less than 5 centistokes at 25°C while cyclic materials typically have viscosities of less than 10 centistokes.

Nonvolatile silicone oils useful as an emollient material include polyalkyl siloxanes, polyalklyaryl siloxanes and polyether siloxane copolymers. The essentially non-volatile polyalkyl siloxanes useful herein include, for example, polydimethyl siloxanes with viscosities of from 5 to 100,000 centistokes at 25°C. Among the preferred non-volatile emollients useful in the present compositions are the polydimethyl siloxanes having viscosities from 10 to 400 centistokes at 25°C.

Among the ester emollients are:

(1) Alkenyl esters of fatty acids having 10 to 20 carbon atoms. Examples thereof include oleyl myristate, oleyl stearate, and oleyl oleate.

(2) Ether-esters such as fatty acid esters of ethoxylated fatty alcohols.

(3) Polyhydric alcohol esters. Ethylene glycol mono and di-fatty acid esters, diethylene glycol mono- and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid esters, propylene glycol mono- and di-fatty acid esters, polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate,

glyceryl mono- and di-fatty acid esters, polyglycerol poly-fatty esters, ethoxylated glyceryl monostearate, 1,3-butylene glycol monostearate, 1,3-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory polyhydric alcohol esters.

(4) Wax esters such as beeswax, spermaceti, myristyl myristate, stearyl stearate.

(5) Sterols esters, of which cholesterol fatty acid esters are examples thereof.

Most preferred from the foregoing list of esters are PEG-40 hydrogenated castor oil (available as Cremophore RH40®) and PPG-10-cetyl ether (available as Procetyl-10®).

Humectants of the polyhydric alcohol-type may also be included in the compositions of this invention. The humectant aids in increasing the effectiveness of the emollient, reduces scaling, stimulates removal of built-up scale and improves skin feel. Typical polyhydric alcohols include glycerol, polyalkylene glycols and more preferably alkylene polyols and their derivatives, including propylene glycol, dipropylene glycol, polypropylene glycol, polyethylene glycol and derivatives thereof, sorbitol, hydroxypropyl sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and mixtures thereof. For best results the humectant is preferably propylene glycol. The amount of humectant may suitably range anywhere from 0.5 to 30%, preferably between 1 and 15% by weight of the composition.

Thickeners/viscosifiers, suitably in amounts up to 5% by

weight of the composition may also be included. As known to those skilled in the art, the precise amount of thickeners can vary depending upon the consistency and thickness of the composition which is desired. Exemplary thickeners are xanthan gum, sodium carboxymethyl cellulose, hydroxyalkyl and alkyl celluloses (particularly hydroxypropyl cellulose), and cross-linked acrylic acid polymers such as those sold by B.F. Goodrich under the Carbopol trademark.

The following examples will more fully illustrate the embodiments of this invention. All parts, percentages and proportions referred to herein and in the appended claims are by weight unless otherwise indicated.

EXAMPLE 1

Typical compositions of the invention prepared from a water (A), alcohol (B) and oil (C) phases are presented in Table I below.

TABLE I

Phase A

INGREDIENT	A	B	C	D	E	F
Zinc sulphate	0.300	0.600	0.300	-	-	0.300
Polyvinyl alcohol PVA-205	5.100	2.800	2.800	6.000	6.00	10.00
Polyvinyl alcohol PVA-523	5.100	10.000	10.000	4.000	4.000	2.800
PEG-20M	0.100	0.100	0.100	-	0.100	0.100
Aloe 40x	0.750	0.750	0.750	0.500	0.250	1.000
Propylene glycol	4.000	-	4.000	4.000	4.000	2.000
Glycerol	-	4.000	-	-	1.000	
Cellulose gum 7HF	-	0.100	-	-	-	-
PEG-6	-	-	-	1.000	-	-
PEG-4	-	-	-	1.000	-	-
Dipotassium glycyrizzinate	0.200	0.500	0.150	0.250	0.4000	0.100
Water	Balance	Balance	Balance	Balance	Balance	Balance

Phase B

INGREDIENT	A	B	C	D	E	F
Alcohol SD-40	30.020	27.770	29.220	10.250	5.100	38.730
Salicylic acid	0.750	1.500	1.000	0.250	1.000	1.000
Glycolic acid	0.400	0.400	0.600	3.000	-	0.300
Lactic Acid	-	-	-	-	1.000	0.300
Ethyl lactate	1.500	3.000	1.500	-	1.500	1.500
Myrrh HS	0.200	1.000	0.500	0.200	0.200	0.200
Rosemary HS	0.200	1.000	0.500	0.200	0.200	0.200
Coltsfoot HS	0.200	0.500	0.500	0.200	0.200	0.200
Sage HS	0.200	0.500	0.500	0.200	0.200	0.200
Bitter orange HS	0.200	0.500	0.500	0.200	0.200	0.200
Thyme HS	-			0.200	-	-
Yarrow HS	0.200	0.500	0.500	-	0.200	0.200
Pemulen TR-2	1.300	1.300	1.300	5.000	5.000	1.300

*HS indicates a 2% by weight dry extract in propylene glycol.

Phase B

INGREDIENT	A	B	C	D	E	F
Cremophore RH40	1.600	1.600	1.800	1.800	2.000	2.000
Procetyl-10	0.800	0.80	0.900	0.900	1.000	1.000
α-bisabolol	0.500	0.500	0.500	0.500	1.000	0.100
Vitamin E acetate	0.400	0.400	0.400	0.400	0.400	0.400
Vitamin E linoleate	-	-	0.100	0.100	0.100	0.100
Vitamin A palmitate	0.50	0.50	-	-	-	-
Tea tree oil	0.80	0.80	0.80	0.40	0.40	0.40
Eucalyptus oil	-	-	-	0.80	-	-

EXAMPLE 2

A series of experiments were conducted to determine the optimum combination of film-forming and adhesive polymers. These were evaluated for facial adhesion, freeze/thaw stability and dry-down time.

TABLE II

Evalution of Face Mask Formulations

TEST NO.	MATERIALS	ADHESION*	FREEZE/THAW* STABILITY	DRY-DOWN TIME (MIN.)
1	8% PVA-523, 8% PVP	P	P	8
2	15% PVA-523	P	P	15
3	4.75% PVP/VA, 12% PVA	P	P	12
4	12% PVA-523, 2% Ganex V220	P	P	5
5	8% PVA-523, 8%, GAFFIX VC-713	P	P	7
6	3% PVP/VA, 16% HPC-HF	E	P	20
7	7% PVA-523, 10% PVP/VA, 10% PVP	E	P	13
8	12% PVA-523, 4% PVP/VA, 3% GANEX V220	P	P	3
9	12%PVA-523, 4% PVP/VA, 4% GAFQUAT 755N	P	P	3
10	9% PVA-523, 2% POLYMER JR400	P	P	20
11	12% PVA-523, 6% PVP/VA, 1% GANEX V-220, 2% FLEXAN 130	G	P	15
12	11% PVA-523, 1% CARBOPOL-1382	G	P	5
13	12% PVA-523, 3% GAFFIX VC-713, .75% PEMULEN TR-2	P	P	10
14	12% PVA-523, 3% GAFFIX VC-713, .75% PEMULEN TR-2, 1% DERMACRYL-79	P	P	12

TABLEII (continued)

TEST NO.	MATERIALS	ADHESION*	FREEZE/THAW* STABILITY	DRY-DOWN TIME (MIN.)
15	15% PVP/VA, 1.5% PEMULEN TR-2	P	P	20
16	9% PVA-523, 1.4% PEMULEN TR-2	E	P	5
17	1.5% HPC-HF, 1.5% PEMULEN TR-2	E	E	25
18	10% PVA-523, 1.2% PEMULEN TR-2	G	P	3
19	10% PVA-523, 1.% PEMULEN TR-2	G	P	3
20	8% PVA-523, 1.0% PEMULEN TR-2	G	P	2.5
21	9% PVA-523, .4% CELLULOSE GUM-7HF, 1.4% PEMULEN TR-2	E	P	7
22	9% PVA-523, .75% NATROSOL PLUS, 1.4% PEMULEN TR-2	E	P	15
23	9% PVA-523, .75% CMHEC-420H, 1.4% PEMULEN TR-2	E	P	15
24	9% PVA-523, .5% VEEGUM ULTRA, 1.4% PEMULEN TR-2	P	P	12
25	9% PVA-523, 2% GELATIN (40% AQ), 1.3% PEMULEN TR-2	E	P	9
26	9% PVA-523, 1% PECTIN, 1.3% PEMULEN TR-2	E	P	15

TABLE II (continued)

TEST NO.	MATERIALS	ADHESION*	FREEZE/THAW* STABILITY	DRY-DOWN TIME (MIN.)
27	9% PVA-523, .5% ALOE 40X, 1.37% PEMULEN TR-2	E	P	3.5
28	9% PVA-523, .75% ALOE 40X, 1.3% PEMULEN TR-2, 2.5% PVA-205	E	E	3
29	10% PVA-523, .75% ALOE 40X, 1.3% PEMULEN TR-2, 4.0% PVA-205	E	E	3.5
30	9.5% PVA-523, .75% ALOE 40X, 1.35% PEMULEN TR-2, 3.5% PVA-205	E	E	3

* P = poor; G = good; E = excellent

IDENTIFICATION OF MATERIALS IN TABLE (II):

PVA-523	Polyvinyl alcohol, high molecular weight
PVA-205	Polyvinyl alcohol, low molecular weight
PVP	Polyvinylpyrrolidone
Ganex V220	Polyvinylpyrrolidone/eicosene copolymer
Gaffix VC-713	Vinyl caprolactam/PVP/dimethylaminoethyl methacrylate copolymer
HPC-HF	Hydroxypropylcellulose, high molecular weight
PVP/VA	Polyvinylpyrrolidone/vinyl acetate copolymer
Gafquat 755N	Polyquaternium-11
Polymer JR-400	Polyquaternium-10
Flexan 130	Sodium polystyrene sulfonate
Carbopol 1382	Acrylates/C_{10}-C_{30} alkyl acrylate crosspolymer
Pemulen TR-2	Acrylates/C_{10}-C_{30} alkyl acrylate crosspolymer, more hydrophobically modified
Dermacryl-79	Acrylates/octylacrylamide copolymer
Cellulose Gum 7HF	Cellulose gum, medium molecular weight
Natrosol Plus	Cetyl hydroxyethylcellulose
CMHEC 420H	Carboxymethyl, carboxyethyl cellulose

The foregoing description and examples illustrate selected embodiments of the present invention. In light thereof, various modifications will be suggested to one skilled in the art, all of which are within the spirit and purview of this invention.

CLAIMS

1. A composition for forming a peelable cosmetic mask comprising:

(i) one or more polyvinyl alcohol polymers having a number average molecular weight ranging from 5,000 to 200,000; and

(ii) a hydrophobically-modified acrylate or methacrylate polymer, the polyvinyl alcohol and hydrophobically-modified acrylate or methacrylate polymer being present in a relative weight ratio of from 50:1 to 1:100.

2. A composition according to claim 1, wherein the hydrophobically-modified acrylate polymer is a copolymer having a major portion formed from a monoolefinically unsaturated carboxylic acid or anhydride monomer of 3 to 6 carbon atoms and a minor portion formed from a long chain acrylate or methacrylate ester monomer.

3. A composition according to claim 2, wherein the copolymer is formed from a carboxylic monomer in an amount of from 50 to 99% by weight and a C_8-C_{30} alkyl acrylate ester in an amount of from 1 to 50% by weight.

4. A composition according to any one of claims 1 to 3, wherein the polyvinyl alcohol comprises a lower weight portion having a number average molecular weight ranging from 15,000 to 27,000 and a higher weight portion having a number average molecular weight ranging from 44,000 to 65,000, the lower and higher weight portions being present in a weight ratio of 1:20 to 20:1, respectively.

5. A composition according to claim 4, wherein the ratio of lower and higher weight portions ranges from 1:10 to 1:1.

6. A composition according to any one of claims 1 to 5, wherein the ratio of polyvinyl alcohol to hydrophobically-modified acrylate or methacrylate polymer ranges from 20:1 to 1:1.

7. A composition according to any one of claims 1 to 6, wherein water is present in an amount of from 30 to 55% by weight.

8. A composition according to any one of claims 1 to 7 further comprising a volatile solvent which is a C_1-C_3 monohydric alcohol present in an amount of from 5 to 50% by weight.

INTERNATIONAL SEARCH REPORT

Int ional Application No
PCT/EP 94/02517

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61K7/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR,A,2 659 551 (TAKAHASHI K.) 20 September 1991 see the whole document	1
A	PATENT ABSTRACTS OF JAPAN vol. 7, no. 69 (C-158) (1214) & JP,A,58 004 707 (KANEBO KK) 11 January 1983 see abstract	1
A	EP,A,0 514 760 (KAO CORPORATION) 25 November 1992 see the whole document	1
A	EP,A,0 309 309 (L'OREAL) 29 March 1989 see the whole document	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search	Date of mailing of the international search report
1 December 1994	20. 12. 94

Name and mailing address of the ISA	Authorized officer
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