

602482

COMMONWEALTH OF AUSTRALIA

Patents Act 1952-1969

CONVENTION APPLICATION FOR A PATENT

LODGED AT SUB-OFFICE

28 JAN 1986

Melbourne

(1) Here
insert (in
full) Name
or Names of
Applicant or
Applicants,
followed by
Address (es).

~~XX~~ (1) L'OREAL,

We of 14, Rue Royale, 75008 Paris, France

(2) Here
insert Title
of Invention.

hereby apply for the grant of a Patent for an invention entitled: (2)

COSMETIC SCREENING COMPOSITION

(3) Here insert
number(s)
of basic
application(s)

which is described in the accompanying complete specification. This application is a
Convention application and is based on the application numbered (3)

85.746

(4) Here Insert
Name of basic
Country or
Countries, and
basic date or
dates

for a patent or similar protection made in (4) Luxembourg
on 28th January 1985

APPLICATION ACCEPTED AND AMENDMENTS

ALLOWED 6-8-90

~~My~~
Our address for service is Messrs. Edwd. Waters & Sons, Patent Attorneys,
50 Queen Street, Melbourne, Victoria, Australia.

DATED this 24th day of January 1986.

L'OREAL

by

Louis C. Gebhardt

(5) Signa-
ture (s) of
Applicant (s)
or
Seal of
Company and
Signatures of
its Officers as
prescribed by
its Articles of
Association.

Reg'd. Patent Attorney

To:

THE COMMISSIONER OF PATENTS.

COMMONWEALTH OF AUSTRALIA

Patents Act 1952-1969

DECLARATION IN SUPPORT OF A CONVENTION
APPLICATION FOR A PATENT OR PATENT OF ADDITION(1) Here
insert (in
full) Name of
Company.In support of the Convention Application made by⁽¹⁾.....
L'OREAL(2) Here
insert title
of Invention.

(hereinafter referred to as the applicant) for a Patent

for an invention entitled:⁽²⁾.....

COSMETIC SCREENING COMPOSITION

(3) Here
insert full Name
and Address,
of Company
official
authorized
to make
declaration.I, ⁽³⁾ ANDRE VIOUT
of 14, rue Royale, 75008 Paris, France

do solemnly and sincerely declare as follows:

1. I am authorised by the applicant for the patent
to make this declaration on its behalf.(4) Here
insert basic
Country or
Countries
followed by
date or dates
and basic
Applicant or
Applicants.2. The basic application as defined by Section 141 of the Act was
made in⁽⁴⁾ Luxembourg
on the 28th day of January 1985, by
L'OREAL

XXXXXX XXXXX XXXXXXXXX

(5) Here
insert (in
full) Name
and Address
of Actual
Inventor or
Inventors.3. ⁽⁵⁾ JEAN-FRANCOIS GROLLIER of 16bis Boulevard
Morland 75004 Paris, Franceis ~~xxx~~ the actual inventor of the invention and the facts upon which the applicant
is entitled to make the application are as follow:

The applicant is the assignee of the said actual inventor

4. The basic application referred to in paragraph 2 of this Declaration
was.....the first application made in a Convention country in
respect of the invention the subject of the application.DECLARED at Paris, France
this 22th day of January 1986

(6) Signature.

To: THE COMMISSIONER OF PATENTS.

(12) PATENT ABRIDGMENT (11) Document No. AU-B-52759/86
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 602482

(54) Title
SUNSCREEN COMPOSITION CONTAINING A POLYMER OBTAINED BY BLOCK
POLYMERIZATION

International Patent Classification(s)
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(56) Prior Art Documents
EP 73529

(57) Claim

1. A cosmetic UV-radiation screening composition
comprising, in combination, in a cosmetically acceptable
medium;

(i) an aqueous dispersion of particles of a
water-insoluble acrylic hetero-polymer so as to
increase the protection index of a UV-radiation
screening agent, said particles comprising:

(a) an ionic polymer forming a core, said ionic
polymer containing ionizable acid groups which
make the core capable of being swollen by at
least partial neutralization with a volatile
base selected from the group consisting of
ammonia and a lower aliphatic amine; and

(b) a polymer forming a sheath at least partially

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(10) 602482

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encapsulating said core, said sheath being permeable to said volatile base and having a glass transition temperature of 50°C or less, said particles being film-forming and being obtained by block polymerization in emulsion; and

- (ii) at least one water soluble or insoluble UV-radiation screening agent.

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Form 10

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952-69

COMPLETE SPECIFICATION

(ORIGINAL)

Class

Int. Class

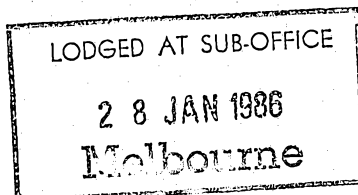
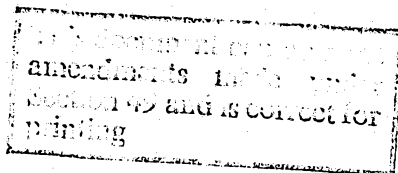
Application Number: 52759/86
Lodged:

Complete Specification Lodged:

Accepted:

Published:

Priority :



Related Art :

Name of Applicant :

L'OREAL

Address of Applicant :

14, Rue Royale, 75008 Paris, France

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Complete Specification for the invention entitled:

COSMETIC SCREENING COMPOSITION

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

COSMETIC SCREENING COMPOSITION

The present invention relates to a cosmetic composition screening ultraviolet radiations, containing a UV screen and a polymer obtained by block polymerization in emulsion, the effect of which is to increase the protection index of the said screening composition, and the use of the said composition to protect the human epidermis against ultraviolet radiations.

It is known that light radiations of wavelengths between 280 and 320 nm, known by the name of UV.B, produce erythemas and cutaneous burns whose severity increases rapidly with the duration of exposure.

As a result, agents which screen these radiations and whose effectiveness is expressed by a sun protection factor, which is conventionally called a protection index or PI, are added to sunscreen preparations.

Irradiation time required to reach the erythematogenic threshold with a UV screen

PI =

Irradiation time required to reach the erythematogenic threshold without a UV screen

It is known, furthermore, that in some cases the agents which screen the UV.B rays can give rise to

adverse secondary effects, and that it is in the cosmetologist's interest to obtain the required protection index with the lowest possible quantity of screening agent in the composition.

5 Moreover, it is difficult to obtain, using means known hitherto, a cosmetic screening composition which, in addition to a high protection index, does not allow a whitish film, hardly appreciated by the users, to remain on the skin after an application, which is not sticky
10 to the touch and which has good chemical and photochemical stability.

 Surprisingly, the applicant has found that by adding to a cosmetically acceptable base containing at least one oil-soluble and/or water-soluble agent screening
15 the ultraviolet radiations, an aqueous dispersion of particles of a water-insoluble polymer defined hereinafter, a cosmetic composition is obtained which screens the UV.B rays, and which has the combination of the above required characteristics and more especially an increased protection
20 index, which advantageously enables the content of the screening agent in the earlier compositions to be reduced.

 The subject of the present invention is consequently a cosmetic composition screening the UV rays, containing, in a cosmetically acceptable base, at least
25 one oil-soluble and/or water-soluble agent screening the ultraviolet radiations and at least one aqueous dispersion of particles of a water-insoluble polymer, comprising:

a) an ionic polymer forming a core, containing ionizable acid groups which make the core capable of being swollen by at least partial neutralization with a volatile base and,

5 b) a polymer forming a sheath at least partly encapsulating the core and permeable to the volatile base, the outer sheath having a glass transition temperature below 50°C and the particles being film-forming, the said aqueous dispersion of polymer being
10 obtained by the process of block polymerization in emulsion described in Patent Application EP 73,529, where it is employed especially as a thickening agent for aqueous coating compositions.

Another subject of the present invention is a
15 process for protecting the human epidermis against the UV rays, consisting in applying on the skin an effective quantity of the cosmetic screening composition defined above.

The cosmetic screening composition according to
20 the invention contains at least one aqueous dispersion of an acrylic heteropolymer described in the abovementioned Patent Application EP 73,529 and more particularly an aqueous dispersion of a water-insoluble acrylic heteropolymer prepared according to the process of block poly-
25 merization in emulsion, described in the said application and such that the sheath polymer has a glass transition temperature, ^{preferably} of -40° to +23°C and encapsulates the core



polymer to an extent of ^{preferably} over 50% and ^{more} preferably over 85%,
and that the volatile base required to swell the core is
in a sufficient quantity ^{preferably} to obtain a pH of at least 6
and ^{more} preferably 9-10.

5 The preferred monomers used in the core polymer
are acrylic and/or methacrylic acid in a proportion of at
least 15% by weight and a polyunsaturated crosslinking
monomer in a proportion of 0.1% to 3% relative to the
total weight of the core monomers, where the acrylic and/
10 or methacrylic acid present in the sheath monomer must
not exceed 10% of the total weight of the sheath monomer
and must be less than one third of its proportion in the
core monomer. The size of the core/sheath particles be-
fore swelling by neutralization is between 0.07 and 4.5
15 microns, preferably between 0.1 and 3.5 and advantageously
between 0.2 and 2 microns.

The core polymer preferably comprises, as a poly-
unsaturated crosslinking monomer, ethylene glycol di(meth)-
acrylate, allyl (meth)acrylate, 1,3-butanediol di(meth)-
20 acrylate, diethylene glycol di(meth)acrylate, trimethylol-
propane trimethacrylate or divinylbenzene.

Preferably, the polymer sold under the name "Ropaque
OP 42" by the company Rohn and Haas is used in the cosmetic
screening composition according to the invention.

25 The polymer is present in the cosmetic screening
composition according to the invention ^{preferably} in a proportion of
0.1% to 10% by weight of active substance relative to the



total weight of the composition, and ^{more}preferably in a proportion of 0.5% to 5% by weight, and the agents screening the ultraviolet radiations are present at a total concentration ^{preferably} of 1% to 20% by weight and ^{more}preferably from 2 to 15%
5 by weight relative to the total weight of the composition.

Among the known screens which can be used in the cosmetic screening composition according to the invention there may be mentioned the UV-A and UV-B screens such as, for example:

10 - benzylidenecamphors such as:

- 3-benzylidene-d,l-camphor
- 3-(4'-methylbenzylidene)-d,l-camphor, sold under the trademark Eusolex 6300
- para-substituted 3-benzylidenecamphors, described
15 and prepared in French Patents Nos. 2,383,904, 2,402,647 and 2,421,878
- sulphonamide derivatives of 3-benzylidenecamphor which are described and prepared in Belgian Patent 897,241 of the applicant
- 20 - p-benzylidenecamphor derivatives such as the 3-p-oxy-benzylidene-2-bornanones described and prepared in Belgian Patent No. 877,596 of the applicant,
and other benzylidenecamphor derivatives such as those described and prepared in French Patents 2,199,971, 2,236,515 and
25 2,282,426 of the applicant and more particularly 4-[(2-oxo-3-bornylidene)methyl]phenyltrimethylammonium methyl sulphate and salts of 4-(2-oxo-3-bornylidenemethyl)benzenesulphonic

acid and 2-methyl-5-(2-oxo-3-bornylidenemethyl)benzene-sulphonic acid,

- 3-cinnamylidenecamphor

- 1,4-dicamphormethylidenebenzenes and camphormethylidene-

5 cinnamates described and prepared in Belgian Patent 897,051 of the applicant;

- p-aminobenzoic acid, its esters and derivatives such as:

- ethyl p-aminobenzoate, sold under the trademark Benzocaine

- isopropyl p-aminobenzoate

10 - isobutyl p-aminobenzoate, sold under the trademark Cycloform

- glyceryl p-aminobenzoate, sold under the trademark Escalol 106

15 - allantoin p-aminobenzoate, sold under the trademark Alpaba

- ethyl N-ethoxy-p-aminobenzoate, sold under the name SC 9155

20 - ethyl N-(2-hydroxypropyl)-p-aminobenzoate and ethyl N,N-bis(2-hydroxypropyl)-p-aminobenzoate, which are sold under the trademark Amerscreen P

- ethyl 4-(dimethylamino)benzoate

- amyl 4-(dimethylamino)benzoate or "Padimate" according to the common international nomenclature, sold under the trademark Escalol 506

25 - 2-ethylhexyl 4-(dimethylamino)benzoate, sold under the trademark Escalol 507

- 3,3,5-trimethylcyclohexyl 2-acetamidobenzoate;

- anthranilates such as:

menthyl anthranilate

trimethylcyclohexyl N-acetylanthranilate;

- cinnamates such as:

5 - octyl cinnamate, sold under the trademark Prosolal S8

- ethyl α -cyano- β -phenylcinnamate, sold under the
trademark Uvinul N 35

- 2-ethylhexyl α -cyano- β -phenylcinnamate, sold under
the trademark Uvinul N 539

10 - α -cyano- β -p-methoxycinnamic acid and its hexyl ester

- 2-ethylhexyl p-methoxycinnamate, sold under the trade-
marks Parsol MCX and Néo Héliopan AV

- amyl and isoamyl p-methoxycinnamate, sold under
the trademark Néo Héliopan E 1000

15 - propyl p-methoxycinnamate

- cyclohexyl p-methoxycinnamate

- 2-ethoxyethyl p-methoxycinnamate or "Cinoxate" accor-
ding to the common international nomenclature, sold
under the trademark Giv-Tan F

20 - potassium cinnamate

- salts of p-methoxycinnamic acid, such as the sodium,
potassium and diethanolamine salts;

- salicylates such as:

- 2-ethylhexyl salicylate

25 - 4-isopropylbenzyl salicylate

benzyl salicylate

- menthyl and homomenthyl salicylates, sold, respectively,

under the trademarks Contrasol and Filtrasol A

- potassium, sodium and triethanolamine salicylates;

- certain benzoxazole derivatives such as:

- 2-(p-toluene)benzoxazole

5 - 5-methyl-2-phenylbenzoxazole, sold under the trademark Witisol;

- other compounds such as:

- 5-(3,3-dimethyl-2-norbornylidene)-3-penten-2-one,
sold under the trademark Prosolal S9

10 - ethyl urocanate

- the trioleate of 3,4-dihydroxy-5-[(3,4,5-trihydroxy-
benzoyl)oxy]benzoic acid, sold under the trademark
Solprotex 1

- sodium 3,4-dimethoxyphenylglyoxylate

15 - 2-phenylbenzimidazole-5-sulphonic acid and its salts;

- benzophenone derivatives such as:

- 2-hydroxy-4-methoxybenzophenone or "oxybenzone",
sold under the trademarks Spectra-Sorb UV 9, Uvinul
M 40 and Eusolex 4360

20 - 2,2'-dihydroxy-4-methoxybenzophenone or "dioxymenzone",
sold under the trademark Cyasorb UV 24

- 2,4-dihydroxybenzophenone, sold under the trademark
Uvinul 400

25 - 2,2',4,4'-tetrahydroxybenzophenone, sold under the
trademark Uvinul D 50

- 2,2'-dihydroxy-4,4'-dimethoxybenzophenone, sold under
the trademark Uvinul D 49

- 2-hydroxy-4-methoxy-4'-methylbenzophenone or "mexenone", sold under the trademark Uvistat 2211
- 2-hydroxy-4-(n-octyloxy)benzophenone or "octobenzene", sold under the trademark Cyasorb UV 531
- 5 - 4-phenylbenzophenone, sold under the trademark Eusolex 3490
- 2-ethylhexyl 2-(4-phenylbenzoyl)benzoate, sold under the trademark Eusolex 3573
- 2-hydroxy-4-methoxybenzophenone-5-sulphonic acid and its sodium salt or "Sulisobenzene" and "sodium Sulisobenzene", sold under the trademark Uvinul MS 40;
- 10 - dibenzoylmethane derivatives such as:
 - 4-isopropyldibenzoylmethane, sold under the trademark Eusolex 8020
- 15 - 4-tert-butyl-4'-methoxy-dibenzoylmethane, sold under the trademark Parsol 1789
- dianisoylmethane, sold under the trademark Parsol DAM;
- certain benzotriazole derivatives such as:
 - 2-(2'-hydroxy-5'-methylphenyl)benzotriazole, sold under the trademark Tinuvin P
 - 20 - 2-(2'-hydroxy-5'-tert-octylphenyl)benzotriazole, sold under the trademark Spectra-Sorb UV 5411.

The above list of sunscreens is obviously not restrictive.

- 25 At least one of the following compounds is preferably employed as an agent absorbing the UV rays:

- 2-ethylhexyl p-(dimethylamino)benzoate (Escalol 507)

- 2-ethylhexyl p-methoxycinnamate (Parsol MCX)
- 3-benzylidene-d,l-camphor
- 3-(4'-methylbenzylidene)-d,l-camphor (Eusolex 6300)
- amyl 4-(dimethylamino)benzoate (Escalol 506)
- 5 - homomenthyl salicylate (Filtrisol A)
- 2-hydroxy-4-methoxybenzophenone (Uvinul M 40 - Spectra-Sorb UV 9)
- N-(2-ethylhexyl)-4-(3'-methylidenecamphor)benzene sulphonamide
- 10 - N-(2-ethylhexyl)-3-benzylidene-10-camphor sulphonamide, optionally in combination with one of the following compounds:
 - tert-butyl-4-methoxy-4'-dibenzoylmethane (Parsol 1789)
 - 4-isopropylidibenzoylmethane (Eusolex 8020)
- 15 - α -(2-oxo-3-bornylidene)toluene-4-sulphonic acid and its salts
- α -(2-oxo-3-bornylidene)-p-xylene-2-sulphonic acid
- 2-hydroxy-4-methoxybenzophenone-5-sulphonic acid
- 4-[(2-oxo-3-bornylidene)methyl]phenyltrimethylammonium methyl sulphate
- 20 - 1,4-di[sulphocamphorylmethylidene]benzene acid, and
- 2-phenylbenzimidazole-5-sulphonic acid.

Besides the polymer obtained by block polymerization in emulsion and described in EP-A-0,073,529 and

25 the agents absorbing the ultraviolet radiations, the cosmetic screening composition according to the invention can contain cosmetic adjuvants usually employed in a

composition of this type.

Among the principal adjuvants which can be present in a composition of this kind, there may be mentioned solvents such as water, lower monoalcohols or polyalcohols containing from 1 to 6 carbon atoms, or mixtures thereof; there may also be mentioned fatty substances such as oils or mineral, animal or plant waxes, fatty acids, fatty acid esters such as triglycerides of fatty acids containing from 6 to 12 carbon atoms, fatty alcohols and oxyethylenated fatty alcohols.

The mono- or polyalcohols which are more especially preferred are chosen from ethanol, isopropanol, propylene glycol, glycerol and sorbitol.

As fatty substances, among the mineral oils there may be mentioned paraffin oil; among the animal oils, whale, seal, alosa, halibut liver, cod, tuna, turtle, tallow neat's-foot, horse's hoof, sheep's foot, mink, otter, marmot oils and the like; among the plant oils, almond, peanut, wheatgerm, olive, maize germ, jojoba, sesame, sunflower, palm, nut oils, and similar oils.

Among the fatty acid esters, mention can be made of the isopropyl esters of myristic, palmitic and stearic acids and the fatty esters which are solid at 25°C.

Vaseline, paraffin, lanolin, hydrogenated lanolin, acetylated lanolin and silicone oil can also be mentioned as fatty substances.

Among the waxes, there may be mentioned Sipol wax,

lanolin wax, beeswax, candelilla wax, microcrystalline wax, carnauba wax, spermaceti, cocoa butter, karite butter, silicone waxes, hydrogenated oils which are solid at 25°C, sucroglycerides, and Ca, Mg, Zr and Al oleates, myristates, 5 linoleates and stearates.

Among the fatty alcohols there may be mentioned lauryl, cetyl, myristyl, stearyl, palmityl and oleyl alcohols, and among the polyoxyethylenated fatty alcohols, lauryl, cetyl, stearyl and oleyl alcohols containing from 10 2 to 20 moles of ethylene oxide.

The cosmetic composition can also contain emulsifiers which can be nonionic, anionic, cationic or amphoteric.

It may also be useful to use thickeners such as 15 cellulose derivatives, polyacrylic acid derivatives, or guar or carob gums.

The cosmetic composition according to the invention can also contain adjuvants usually employed in cosmetics and especially hydrating products, emollients, dyes, 20 preserving agents and perfumes.

The cosmetic screening composition according to the invention may be presented in the form of an emulsion (cream or milk), a salve, a gel, or be packaged as an aerosol, and in general, in any of the usual forms of the 25 antiactinic cosmetic compositions.

The invention will be illustrated better with the aid of the following nonrestrictive examples:

EXAMPLE 1

EMULSION (sunscreen cream)

Polymer sold in aqueous emulsion at a concentration of 40% AS under the name Ropaque

5	OP 42 by the company Rohm & Haas	2.0 g AS
	2-ethylhexyl 4-(dimethylamino)benzoate	2.5 g AS
	2-hydroxy-4-methoxybenzophenone	1.0 g AS
	Mixture of glycerol mono- and distearate, not self-emulsifiable, sold under the name of	
10	Geleol Copeaux by the company Gattefosse	2.0 g AS
	Mixture of cetylstearyl alcohol and of cetylstearyl alcohol oxyethylenated with 33 moles of ethylene oxide, sold under the name "Sinnowax A0" by the company Henkel	
		7.0 g AS
15	Cetyl alcohol	1.5 g AS
	Silicone oil	1.5 g
	Paraffin oil	15.0 g
	Glycerine	20.0 g
	Perfume preserving agent	q.s.
20	Water	q.s. 100.0 g

It is found that the emulsion of this example, containing the polymer Ropaque OP 42, has a sun protection index equal to 6.5, whereas that of the emulsion which contains only the UV screens consisting of 2-ethylhexyl 4-(dimethylamino)benzoate and 2-hydroxy-4-methoxybenzophenone is equal to 4.7.

EXAMPLE 2

EMULSION (sunscreen milk)

	Parsol MCX (2-ethylhexyl p-methoxycinnamate)	4.0 g
5	Ropaque OP 42	3.0 g AS
	Stearyl alcohol	2.7 g
	Isopropyl palmitate	5.0 g
	Cetylstearyl alcohol containing 33 moles of ethylene oxide	2.7 g
10	Preserving agent	q.s.
	Perfume	q.s.
	Demineralized water	q.s. 100 g

EXAMPLE 3

EMULSION (sunscreen cream)

15	Eusolex 6300 (3-(4'-methylbenzylidene)- d,l-camphor)	4.0 g
	Ropaque OP 42	3.5 g AS
	Sipol wax	7.0 g
	Glycerol monostearate	2.0 g
20	Paraffin oil	15.0 g
	Silicone oil	1.5 g
	Cetyl alcohol	1.5 g
	Glycerine	10.0 g
	Perfume	q.s.
25	Preserving agent(s)	q.s.
	Dye(s)	q.s.
	Water	q.s. 100 g

EXAMPLE 4

EMULSION (sunscreen cream)

4-[(2-oxo-3-bornylidene)methyl]phenyltrimethyl-
ammonium methyl sulphate prepared according to

5	Examples 1 or 2 of French Patent No. 2,199,971	1.0 g
	Benzylidenecamphor	2.0 g
	Ropaque OP 42	2.5 g
	Cetyl alcohol	1.2 g
	Self-emulsifiable glycerol monostearate	7.4 g
10	Sorbitan monostearate polyoxyethylenated with 60 moles of ethylene oxide	2.7 g
	Lanolin	4.0 g
	Paraffin oil	30.0 g
	Perfume	q.s.
15	Preserving agent(s)	q.s.
	Dye(s)	q.s.
	Water	q.s. 100 g

EXAMPLE 5

EMULSION (sunscreen cream)

20	4-tert-butyl-4'-methoxydibenzoylmethane (parsol 1789)	0.5 g
	2-Ethylhexyl p-methoxycinnamate (Parsol MCX)	3.0 g
	Ropaque OP 42	3.0 g AS
	Mixture of cetylstearyl alcohol and cetylstearyl 25 alcohol oxyethylenated with 33 moles of ethyl- ene oxide, sold under the name "Sinnowax A0" by the company Henkel	8.0 g

Mixture of nonemulsifiable glycerol mono- and distearate, sold under the name Geleol Copeaux

by the company Gattefosse 2.0 g

Cetyl alcohol 2.0 g

5 Paraffin oil 15.0 g

Glycerine 18.0 g

Propylene glycol 2.0 g

Perfume, preserving agent q.s.

Water q.s. 100 g

10

EXAMPLE 6

EMULSION (sunscreen milk)

Homomenthyl salicylate 6.0 g

2-Ethylhexyl p-(dimethylamino)benzoate

(Escalol 507) 1.0 g

15 Ropaque OP 42 2.5 g AS

Stearyl alcohol 2.7 g

Isopropyl palmitate 5.0 g

Cetylstearyl alcohol containing 33 moles of ethylene oxide 2.7 g

20 Perfume, preserving agent q.s.

Water q.s. 100 g

EXAMPLE 7

EMULSION (sunscreen cream)

N-(2-ethylhexyl)-4-(3'-methylidenecamphor)-

25 benzenesulphonamide 0.5 g

5-Methyl-2-phenylbenzoxazole (Witisol) 0.5 g

5-(3,3-Dimethyl-2-norbornylidene)-3-penten-

2-one (Prosolal 59)

3.0 g

Ropaque OP 42

3.5 g AS

Triglycerides of caprylic/capric acid (60/40),

5 sold under the name Miglyol 812 by the company

Dynamit Nobel

20.0 g

Mixture of cetylstearyl alcohol and cetylste-

aryl alcohol containing 33 moles of ethylene

oxide, sold under the name "Sinnowax A0" by

10 the company Henkel

9.0 g

Cetyl alcohol

3.0 g

70% sorbitol

8.0 g

Preserving agent, perfume q.s.

Water

q.s.

100 g

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A cosmetic UV-radiation screening composition comprising, in combination, in a cosmetically acceptable medium;

- (i) an aqueous dispersion of particles of a water-insoluble acrylic hetero-polymer so as to increase the protection index of a UV-radiation screening agent, said particles comprising:
 - (a) an ionic polymer forming a core, said ionic polymer containing ionizable acid groups which make the core capable of being swollen by at least partial neutralization with a volatile base selected from the group consisting of ammonia and a lower aliphatic amine; and
 - (b) a polymer forming a sheath at least partially encapsulating said core, said sheath being permeable to said volatile base and having a glass transition temperature of 50°C or less, said particles being film-forming and being obtained by block polymerization in emulsion; and
- (ii) at least one water soluble or insoluble UV-radiation screening agent.

2. A cosmetic screening composition according to Claim 1 comprising an aqueous dispersion of a water-insoluble acrylic heteropolymer in which the sheath polymer has a glass transition temperature of from -40°C to 23°C and encapsulates the core polymer to an extent of over 50%, the volatile base required to swell the core being present in sufficient quantity to obtain a pH of at least 6.



3. A cosmetic screening composition according to Claim 1 or Claim 2 wherein the core polymer is obtained from a mixture of monomers comprising at least 15% of acrylic and/or methacrylic acid by weight based on the total weight of the core monomers and 0.1 to 3% by weight of a poly-



unsaturated crosslinking monomer, and wherein sheath polymer is obtained from a mixture of monomers comprising acrylic and/or methacrylic acid in an amount not exceeding 10% by weight based on the total weight of the sheath monomers and which is less than one third of the proportion of acrylic and/or methacrylic acid in the core monomers, the size of the particles before swelling by neutralization being from 0.07 to 4.5 μ m.

4. A cosmetic screening composition according to any one of claims 1 to 3, comprising the polymer "Ropaque OP 42" as an aqueous emulsion of the acrylic heteropolymer as hereinbefore defined at a concentration of 40% of active substance.

5. A cosmetic screening composition according to any one of claims 1 to 4, wherein the polymer is present at from 0.1 to 10% by weight based on the total weight of the composition.

6. A cosmetic screening composition according to claim 5, wherein the polymer is present at from 0.5 to 5% by weight.

7. A cosmetic screening composition according to any one of claims 1 to 5, wherein the UV screens are present, in total, at from 1 to 20% by weight based on the total weight of the composition.

8. A cosmetic screening composition according to claim 7 wherein the UV screens are present, in total, at from 2 to 15% by weight.



9. A cosmetic screening composition according to any preceding claim wherein each UV screen is chosen from benzylidenecamphors, p-aminobenzoic acid, its esters and derivatives, anthranilates, cinnamates, salicylates, benzoxazole derivatives, 5-(3,3-dimethyl-2-norbornylidene)-3-penten-2-one, ethyl urocanate, the trioleate of 3,4-dihydroxy-5-[(3,4,5-trihydroxybenzoyl)oxy] benzoic acid, sodium 3,4-dimethoxyphenylglyoxylate, 2-phenylbenzimidazole-5-sulphonic acid and its salts, benzophenone derivatives, dibenzoylmethane derivatives and benzotriazole derivatives.

10. A cosmetic screening composition according to claim 9 comprising, as UV screen, at least one of the following compounds: 2-ethylhexyl p-(dimethylamino) benzoate, 2-ethylhexyl p-methoxycinnamate, 3-benzylidene-d,l-camphor, 3-(4'-methylbenzylidene)-d,l-camphor, amyl 4-(dimethylamino)benzoate, homomenthyl salicylate, 2-hydroxy-4-methoxybenzophenone, N-(2-ethylhexyl)-4-(3'-methylidenecamphor)benzene sulphonamide, and N-(2-ethylhexyl)-3-benzylidene-10-camphor sulphonamide.

11. A cosmetic screening composition according to claim 10 further comprising one of the following compounds: tert-butyl-4-methoxy-4'-dibenzoylmethane, 4-isopropylidibenzoylmethane, α -(2-oxo-3-bornylidene)toluene-4-sulphonic acid and its salts, α -(2-oxo-3-bornylidene)-p-xylene-2-sulphonic acid, 2-hydroxy-4-methoxybenzophenone-5-sulphonic acid, 4-[(2-oxo-3-bornylidene)methyl]-phenyltrimethylammonium methyl sulphate, 1,4-di[sulpho-camphorylmethylidene]benzene acid and 2-phenylbenzimidazole-5-sulphonic acid.

zole-5-sulphonic acid.

12. A cosmetic screening composition according to any ^{one of claims 1-11} ~~preceding claim~~ further comprising one or more usual cosmetic adjuvants.

5 13. A cosmetic screening composition according to claim 12 wherein the adjuvants are chosen from solvents, fatty substances, thickeners, emollients, hydrating products, dyes, preserving agents, perfumes and propellants.

14. A cosmetic screening composition according to any
10 preceding claim presented in the form of an emulsion, a salve, a gel, or packaged as an aerosol.

15. A cosmetic screening composition according to claim 14 presented as a cream or milk.

16. A cosmetic screening composition according to claim
15 1 and substantially as hereinbefore described with reference to any one of the Examples.

~~17. A process for protecting human epidermis against~~
the UV rays comprising applying, to the skin, an effective quantity of a cosmetic screening composition according
20 to any preceding claim.

18. A process according to claim 17 substantially as hereinbefore described.

19. The present invention in each and all of its new ~~and useful aspects as set out hereinbefore.~~

DATED this 24th day of January 1986.
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