CONVENTION APPLICATION FOR A PATENT

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

(2) Here insert Title of Invention.

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

(4) Here insert Name of basic Country or Convention, and basic date or dates

We hereby apply for the grant of a Patent for an invention entitled:

"COSMETIC COMPOSITIONS FOR REDUCING OR ELIMINATING THE GREASY APPEARANCE OF THE HAIR AND SKIN, AND COMPOUNDS FOR USE THEREIN"

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

78 18071

for a patent or similar protection made in FRANCE on 16th June, 1978

Our address for service is Messrs. Edwd. Waters & Sons, Patent Attorneys,

50 Queen Street, Melbourne, Victoria, Australia.

DATED this 13th day of JUNE, 1979

by:

(T. A. Barnes)

Res. Pat. Atty.

To:

THE COMMISSIONER OF PATENTS.
DECLARATION IN SUPPORT OF A CONVENTION APPLICATION FOR A PATENT OR PATENT OF ADDITION

In support of the Convention Application made by 48054/79

L’OREAL

(hereinafter referred to as the applicant) for a Patent

for an invention entitled: "COSMETIC COMPOSITIONS FOR REDUCING OR ELIMINATING THE GREASY APPEARANCE OF THE HAIR AND SKIN, AND COMPOUNDS FOR USE THEREIN"

1. [Full Name and Address of Company or Person Authorized to make declaration]

2. The basic application as defined by Section 141 of the Act was made in [Country or Countries] followed by dates of [day and month], 1979, by [Company or Person]

3. [Name and Address of Inventors]

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 17th day of MAY 1979

To: THE COMMISSIONER OF PATENTS
DOCUMENTS LODGED WITH THIS APPLICATION ARE UNSUITABLE FOR REPRODUCTION AND MAY BE INSPECTED AT THE PATENT OFFICE A.C.T.
SULFUR CONTAINING HYDROXYALKYLAMINES AS COSMETIC INGREDIENTS

L'OREAL

48 054/79 523 429
14.6.79

78 18071 (32) 16.6.78

7.2.80

C07C 149/24 C07C 149/14 C07C 149/243 C07C 149/42
C07C 149/43 C07C 147/02 C07D 295/08 A61K 7/48
A61K 7/06 A61K 7/11 A61K 31/535 A61K 31/13
A61K 31/135 A61K 31/445

CLAUD BOUILLON AND JEAN MAIGNAN

Claim 21. A compound of the general formula:

\[
\begin{align*}
\text{R}_2 \\
\text{R}_1 - \text{S-CH}_2-\text{CH}_2-\text{N-CH}_2-\text{CH-R}_3 \\
(C)_n \quad \text{OH}
\end{align*}
\]

in which: \( n \) is 0, 1 or 2, \( R_2 \) represents either a hydrogen atom or a radical which is \(-\text{CH}_2-\text{OH}, -\text{CH}_2-\text{CH}_3 \) or \(-\text{CH}_2-\text{CH}_2-\text{OH}, R_3 \) represents either a hydrogen atom or \(-\text{OH} \).
or a radical which is -CH₃ or -CH₂OH, and R₁ represents a radical which is

i) -CH₃

ii) -CH₂-CH = CH₂

iii) -CH₂-CH₂OH

iv) -(CH₂)ₘ-CH-COOH, m being 1 or 2 and R₄ NH-R₄

representing a hydrogen atom or the radical -COR₅, R₅ being a saturated or unsaturated aliphatic radical having from 1 to 8 carbon atoms,

v) -CH₂COR₆, R₆ representing a radical -OH or

-N<..<r', r' and r'', which are identical or different,

representing a hydrogen atom or an alkyl radical having from 1 to 5 carbon atoms, or r' and r'' together forming a divalent radical of the formula: -(CH₂)₂-O-(CH₂)₂- or of the formula: -(CH₂)₅-,

vi) -CH₂

, in which case R₂ can only represent a hydrogen atom if R₃ represents a hydrogen atom, and

vii) , R₇ representing either the radical -NH₂ or the radical -COOH, in which latter case R₂ and R₃ are not hydrogen atoms.
L'OREAL

14, rue Royale - 75008 PARIS, FRANCE

Claude BOUILLON and Jean MAIGNAN

EDWD. WATERS & SONS,
50 QUEEN STREET, MELBOURNE, AUSTRALIA, 3000.

"COSMETIC COMPOSITIONS FOR REDUCING OR ELIMINATING THE GREASY APPEARANCE OF THE HAIR AND SKIN, AND COMPOUNDS FOR USE THEREIN"

The following statement is a full description of this invention, including the best method of performing it known to the inventors.
DESCRIPTION
COSMETIC COMPOSITIONS FOR REDUCING OR ELIMINATING THE GREASY APPEARANCE OF THE HAIR AND SKIN, AND COMPOUNDS FOR USE THEREIN

The present invention relates to cosmetic compositions for reducing or eliminating the greasy appearance of the hair and skin.

For the purpose of reducing the greasy appearance of the hair and skin, it has already been proposed to use thioethers derived from β-aminoethane-thiol, in which the amine group is a primary amine group; the use of 2-(S-benzylthio)ethylamine hydrochloride has been particularly suggested.

Completely surprisingly, it has been found, according to the present invention, that the activity of some of these known compounds can be increased, and, furthermore, that their toxicity can be reduced, if the primary amine group is substituted by at least one alkyl radical carrying a hydroxyl group in the β-position relative to the nitrogen atom. The excellent activity of these compounds was completely unpredictable because the compounds substituted by non-hydroxylic alkyl radicals do not exhibit such activity.

The present invention provides a cosmetic
composition suitable for application to the hair and/or skin, this composition containing, in a suitable vehicle, at least one active ingredient corresponding to the following formula:

\[
R_1 \cdot S \cdot \underset{(0) \cdot n}{\underbrace{-CH_2\cdot CH_2\cdot N\cdot CH_2\cdot CH\cdot R_3}} \cdot OH
\]

in which: \( n \) is 0, 1 or 2, \( R_2 \) represents either a hydrogen atom or a radical which is: \(-CH_2\cdot CH_2\cdot OH\), \(-CH_2\cdot CH\cdot CH_3\) or \(-CH_2\cdot CH\cdot CH_2\cdot OH\), \( R_3 \) represents either a hydrogen atom or a radical which is: \(-CH_3\) or \(-CH_2\cdot OH\), and \( R_1 \) represents a radical which is

(i) \(-CH_3\),
(ii) \(-CH_2\cdot CH = CH_2\),
(iii) \(-CH_2\cdot CH_2\cdot OH\),
(iv) \(-CH_2\cdot CH\cdot COOH\), \( m \) being 1 or 2 and \( R_4 \) representing a hydrogen atom or the radical \(-COR_5\), \( R_5 \) being a saturated or unsaturated aliphatic, e.g. alkyl, radical having from 1 to 8 carbon atoms,
(v) \(-CH_2\cdot COR_6\), \( R_6 \) representing a radical \(-OH\) or \(-NH\cdot r'\cdot r''\), \( r' \) and \( r'' \), which are identical or different, representing a hydrogen atom or an alkyl radical having from 1 to 5 carbon atoms, or \( r' \) and \( r'' \) together forming a divalent radical of the formula: \(-(CH_2)_2\cdot O\cdot (CH_2)_2\cdot \) or the formula: \(-(CH_2)_5\cdot \),
(vi) \(-CH_2\cdot \)

and
R\_7 representing either the radical -NH\_2 or the radical -COOH.

These active ingredients can be used either in the form of the free base or in the form of an addition salt with an inorganic or organic acid; they can also be used as a mixture of these two forms.

Amongst the acids, there may be mentioned, in particular: hydrochloric acid, hydrobromic acid, tartaric acid, malic acid, nicotinic acid, salicylic acid, N-oxo-nicotinic acid, palmitic acid, gentisic acid, pyrrolidonecarboxylic acid, ascorbic acid, para-chlorophenoxyisobutyric acid, retinoic acid; α-hydroxyisobutyric acid, α- and β-hydroxybutyric acid, 5-amino-3-thiahexanedioic acid, pyruvic acid, glycolic acid, citric acid, aspartic acid, glutamic acid, oxoglutaric acid, camphosulphonic acid, thiodiglycolic acid and uronic acids.

Amongst the active ingredients which can be used in the compositions according to the invention, the following may be mentioned in particular:

- Compound No.:
  1. N-(2-Methylthioethyl)-β-hydroxyethylamine
  2. N-(2-Methylsulphinylethyl)-β-hydroxyethylamine
  3. N-(2-Methylsulphinylethyl)-bis-(2-hydroxyethyl)-amine
  4. N-(2-Methylsulphonylethyl)-bis-(2-hydroxyethyl)-amine
  5. N-(2-Methylsulphinylethyl)-bis-(2-hydroxypropyl)-amine
  6. N-(2-Methylsulphinylethyl)-bis-(2,3-dihydroxypropyl)-amine
7a. N-(2-Allylthioethyl)-bis-(2-hydroxypropyl)-ammonium tartrate
7b. N-(2-Allylthioethyl)-bis-(2-hydroxypropyl)-ammonium p-chlorophenoxyisobutyrate
8. N-(2-Allylsulphinylethyl)-bis-(2-hydroxypropyl)-amine
9. N-(2-Allylthioethyl)-bis-(2,3-dihydroxypropyl)-amine
9'. N-(2-Allylthioethyl)-bis-(2-hydroxyethyl)-ammonium glutamate
10. N-[2-((β-Hydroxyethylthio)-ethyl]-bis-(2-hydroxypropyl)-amine
11. N-[2-((β-Hydroxyethylsulphinyl)-ethyl]-bis-(2-hydroxypropyl)-amine
12. 3-[2-((β-Hydroxyethylamino)-ethylthio]-alanine
13. 3-[2-(2-Hydroxypropylamino)-ethylthio]-alanine
14. 3-[2-[bis-(2-hydroxypropyl)-amino]-ethylthio]-alanine
15. 3-[2-[bis-(2,3-dihydroxypropyl)-amino]-ethylthio]-alanine
16. 2-Acetamido-3-[2-(2-hydroxyethylamino)-ethylthio]-propionic acid
17. 2-Acetamido-3-[2-[bis-(2-hydroxypropyl)-amino]-ethylthio]-propionic acid
18. 2-Acetamido-3-[2-[bis-(2,3-dihydroxypropyl)-amino]-ethyl-thio]-propionic acid
19. 2-Amino-4-[2-(2-hydroxyethylamino)-ethylthio]-butyric acid
20. 2-Amino-4-[2-[bis-(2,3-dihydroxypropyl)-amino]-ethyl-thio]-butyric acid
21. 2-Amino-4-[2-(2-hydroxypropylamino)-ethylthio]-butyric acid
22. 2-Amino-4-[2-{bis-(2-hydroxypropyl)-amino}-ethylthio]-butyric acid

23. 2-(2-Hydroxyethylamino)-ethylthioacetic acid

24. 2-[Bis-(2-hydroxypropyl)-amino]-ethylthioacetic acid

25. N-(2-Morpholinocarbonylmethylthioethyl)-bis-(2-hydroxyethyl)-amine


26a. N-(2-Morpholinocarbonylmethylthioethyl)-bis-(2-hydroxypropyl)-amine hydrochloride

26b. N-(2-Morpholinocarbonylmethylthioethyl)-bis-(2-hydroxypropyl)-ammonium pyruvate

26c. N-(2-Morpholinocarbonylmethylthioethyl)-bis-(2-hydroxypropyl)-ammonium p-chlorophenoxyisobutyrate

26d. Di-[N-(2-morpholinocarbonylmethylthioethyl)-bis-(2-hydroxypropyl)-ammonium] malate

26e. Di-[N-(2-morpholinocarbonylmethylthioethyl)-bis-(2-hydroxypropyl)-ammonium] tartrate

27. N-[2-(o-Aminophenylthio)-ethyl]-β-hydroxyethylamine

27a. N-[2-(o-Aminophenylthio)-ethyl]-β-hydroxyethylammonium gentisate

27b. N-[2-(o-Aminophenylthio)-ethyl]-β-hydroxyethylammonium p-chlorophenoxyisobutyrate

27c. Di-[N-[2-(o-aminophenylthio)-ethyl]-β-hydroxyethylammonium] malate

27d. Di-[N-[2-(o-aminophenylthio)-ethyl]-β-hydroxyethylammonium] malate
niun]tartrate

27e. N-[2-(o-Aminophenylthio)-ethyl]-α-hydroxyethylammonium

5 malate

28. N-[2-(o-Aminophenylthio)-ethyl]-bis-(2-hydroxyethyl)-

amine

29. N-[2-(o-Aminophenylthio)-ethyl]-bis-(2,3-dihydroxy-

propyl)-amine

30. N-[2-(o-Aminophenylthio)-ethyl]-bis-(2-hydroxypropyl)-

amine

31. 2-[2-[(β-Hydroxyethylamino)-ethylthio]-benzoic acid

32. 2-[2-[(β-Hydroxyethylamino)-ethylsulphinyl]-benzoic acid

33. 2-[2-{Bis-(2-hydroxypropyl)-amino}-ethylthio]-benzoic

acid

34. 2-[2-{Bis-(2-hydroxypropyl)-amino}-ethylsulphinyl]-

benzoic acid

35. 2-[2-{Bis-(2,3-dihydroxypropyl)-amino}-ethylthio]-

benzoic acid

36. 2-[2-{Bis-(2,3-dihydroxypropyl)-amino}-ethylsulphinyl]-

benzoic acid

37. N-(2-Benzylthioethyl)-β-hydroxyethylamine

37a. N-(2-Benzylthioethyl)-β-hydroxyethylamino hydrochloride

38. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-amine

38a. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-amine hydro-

cloride

38b. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-ammonium

pyruvate

38c. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-ammonium
p-chlorophenoxyisobutyrate
38d. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-ammonium pyrrolidonecarboxylate
38e. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-ammonium malate
38f. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-ammonium gentisate
38g. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-ammonium glucuronate
38h. N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-ammonium 2-oxoglutarate
39. N-(2-Benzylthioethyl)-bis-(2,3-dihydroxypropyl)-amine
40. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-amine
40a. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-amine hydrochloride
40b. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium gentisate
40c. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium malate
40d. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium α-hydroxyisobutyrate
40e. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium pyruvate
40f. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium 2-oxoglutarate
40g. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium ascorbate
- 8 -

40h. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium 3-hydroxybutyrate
40i. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium camphosulphonate
40j. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium 5-amino-3-thiahexanedioate
40k. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium nicotinate
40l. N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium salicylate
41. N-(2-Benzylsulphinylethyl)-bis-(2-hydroxypropyl)-amine
42. N-(2-Benzylthioethyl)-N-(2-hydroxyethyl)-2-hydroxypropylamine
43. N-(2-Benzylthioethyl)-N-(2-hydroxyethyl)-2,3-dihydroxypropylamine

The meanings of the radicals $R_1$, $R_2$, $R_3$ and $n$ in the compounds listed above are summarised in the following Table 1.
Especially preferred active ingredients are compounds identified as compounds 1 to 7, 7a, 7b, 8, 9, 91, 10 to 26, 26a to e, 27a to e, 28 to 37, 37a, 38, 38a to h, 39, 40, 40a to l, 41, 42, 42a & 43.

The meanings of the radicals R₁, R₂, R₃ and n in the compounds listed above are summarised in the following table I:
TABLE 1

<table>
<thead>
<tr>
<th>Compound</th>
<th>R₁</th>
<th>R₂</th>
<th>R₃</th>
<th>n</th>
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TABLE I (continuation)

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<td>42</td>
<td>-CH₂-C₆H₅</td>
<td>-CH₂CH₂OH</td>
<td>CH₃</td>
<td>0</td>
</tr>
<tr>
<td>43</td>
<td>-CH₂-C₆H₅</td>
<td>-CH₂CH₂OH</td>
<td>CH₃</td>
<td>0</td>
</tr>
</tbody>
</table>

The cosmetic compositions according to the invention contain at least one active ingredient according to the formula (I) above, or one of its salts, generally in suspension or in solution in water, in an alcohol (such as ethanol or isopropanol), in an aqueous-alcoholic solution, in an oil, in an emulsion or in a gel.

If the active ingredient is acidic or basic, it can be neutralised in situ in the composition, either totally or partially, respectively with an inorganic or organic base or with an inorganic or organic...
acid, it being possible for the latter to be chosen, in particular, from amongst the acids mentioned above. The concentration of active ingredient is generally from 0.1 to 20% and preferably from 1 to 10%.

The hair compositions according to the invention can contain the active ingredients of the formula (I) either by themselves, or mixed with one another, or also mixed with other compounds which are already known for combatting the greasy and unattractive appearance of the head of hair. The hair compositions according to the invention can also contain ingredients, such as penetrating agents or perfumes, which are generally used in cosmetics.

The cosmetic compositions according to the invention can also be presented as a dry shampoo, in the form of a powder or aerosol, which does not contain any surface-active agent and which is intended for application to the hair when dry. In using this dry shampoo, the latter is left on the hair for a certain time and the head of hair is then simply brushed.

The cosmetic compositions can also be presented as lacquers or wavesetting lotions containing at least one active ingredient in combination, in a suitable cosmetic vehicle, with at least one conventional cosmetic resin. Amongst the cosmetic resins which can be used, there may be mentioned, in particular: polyvinylpyrrolidone;
copolymers of vinylpyrrolidone and vinyl acetate; copolymers of vinyl acetate and an unsaturated carboxylic acid such as crotonic acid; copolymers resulting from the polymerisation of vinyl acetate, crotonic acid and an acrylic or methacrylic acid ester; copolymers resulting from the copolymerisation of vinyl acetate and an alkyl vinyl ether; and copolymers resulting from the copolymerisation of vinyl acetate, crotonic acid and a vinyl ester of an acid having a long carbon chain i.e. having at least 8 carbon atoms, or also an allyl or methallyl ester of an acid having a long carbon chain.

The cosmetic resins present in these compositions in the form of lacquers or wavesetting lotions can also comprise coloured polymers, that is to say polymers containing, in their macromolecular chain, dyestuff molecules which make it possible to impart a particular colouration or shade to the head of hair.

These compositions can also contain direct dyestuffs intended to produce a colouration or shading of the head of hair. They can also contain ingredients which are conventional for cosmetic compositions intended to hold the head of hair in a particular condition, such as penetrating agents, cationic compounds, quaternary ammonium salts, vitamins, proteins, peptides of varying degrees of hydrolysis, starch derivatives or cellulose derivatives, surface-active agents, dyestuffs and perfumes.

The cosmetic vehicles which can be used for producing compositions of these types can consist of conventional
mixtures used for producing lacquers and wavesetting lotions or also styling compositions, in particular as an alcoholic or aqueous-alcoholic solution of the active ingredient and of the resin in order to form a wavesetting lotion.

The alcoholic or aqueous-alcoholic solution of the active ingredient can also be mixed with a suitable amount of propellant gas, which is liquefied under pressure and packaged in an aerosol container, and can form what is suitably referred to as a hair lacquer.

In these types of composition in the form of wavesetting lotions or lacquers, the concentration of active ingredient is generally from 0.1 to 10 % but preferably from 1 to 3 %, whilst the concentration of resin is preferably from 0.1 to 10 % by weight.

The cosmetic compositions according to the invention can also be presented as treating shampoos which have a clear, opaque or pearlescent, liquid appearance, or alternatively as a cream or gel, and which make it possible effectively to combat the greasy and unattractive appearance of the head of hair.

These shampoo compositions are essentially characterised in that they contain at least one anionic, cationic, non-ionic or amphoteric detergent with at least one active ingredient of the formula (I).

Amongst the anionic detergents, there may be mentioned, in particular: alkyl-sulphates, alkyl-ether-
sulphates, alkyl-polyether-sulphates, alkylsulphonates
(the alkyl groups possessing from 8 to 18 carbon atoms),
sulphated monoglycerides, sulphonated monoglycerides,
sulphated alkanolamides, sulphonated alkanolamides, soaps
of fatty acids, monosulphosuccinates of fatty alcohols,
products resulting from the condensation of fatty acids
with isethionic acid, products resulting from the condensa-
tion of fatty acids with methyltaurine, products resulting
from the condensation of fatty acids with sarcosine,
and products resulting from the condensation of fatty acids
with a protein hydrolysate. Amongst the cationic deter-
gents, there may be mentioned, in particular: long-chain
quaternary ammonium salts, esters of fatty acids and
aminoalcohols, and polyether amines.

Amongst the non-ionic detergents, there may be
mentioned, in particular: esters of polyols and sugars,
products resulting from the condensation of ethylene oxide
with fatty acids, with fatty alcohols, with long-chain alkyl-
phenols, with long-chain mercaptans and with long-chain
amides, polyethers of polyhydroxylic fatty alcohols or of
amphoteric detergents such as asparagine derivatives,
products resulting from the condensation of monochloroacetic
acid with imidazolines, alkylamino propionates, betaine
derivatives or amine oxides.

These compositions in the form of shampoos generally
contain from 0.1 to 15 %, but preferably from 1 to 10 %,
of active ingredient. They also contain, for example,
from 4 to 20 %, but preferably from 5 to 10 %, by weight, of detergents in solution in an aqueous medium.

Such shampoos can also contain the usual cosmetic ingredients such as perfumes and dyestuffs. They can also contain thickeners, such as alkanolamides of fatty acids, cationic polymers, such as quaternised copolymers of vinylpyrrolidone and cationic cellulose polymers, cellulose derivatives, such as carboxymethylcellulose or hydroxymethylcellulose, esters of long-chain polyols and natural gums, in order to be presented in the form of a cream or gel.

Again, these shampoos can be presented in the form of powders intended either to be applied to the hair when wet or to be solubilised in some water before the head of hair is washed.

These shampoo compositions can also comprise dyestuffs intended for dyeing the hair.

In general, a satisfactory result can be achieved by shampooing once a week; this makes it possible to reduce, and in certain cases to eliminate, the greasy appearance of the head of hair, whilst also providing the normal care of the head of hair.

We have also found that, in association with a suitable cosmetic vehicle, the active ingredients as defined above can be applied to the skin in order to improve its appearance. Such compositions are preferably presented in the form of creams, milks, gels, dermatological blocks
or aerosol foams. These compositions can also be presented in the form of aqueous or aqueous-alcoholic lotions. They generally contain from 0.1 to 15 %, and preferably from 1 to 5 %, of active ingredient.

These compositions can also contain conventional ingredients in skin-care compositions such as fatty substances, preservatives, perfumes, dyestuffs and waxes. They can also contain coloured pigments which make it possible to dye the epidermis and to mask the flaws on the skin.

The present invention also provides as new compounds, the compounds corresponding to the following general formula:

\[ R_2 \]

\[ R_1 - S - \text{CH}_2 - \text{CH}_2 - N - \text{CH}_2 - \text{CH} - R_3 \]

\((n)\)

\[ \text{OH} \]

in which: \(n\) is 0, 1 or 2, \(R_2\) represents either a hydrogen atom or a radical which is: \(-\text{CH}_2 - \text{CH}_2 \text{OH}, \ -\text{CH}_2 - \text{CH} - \text{CH}_3 \) and \(-\text{CH}_2 - \text{CH} - \text{CH}_2 \text{OH}, \]

\(R_3\) represents either a hydrogen atom \(-\text{CH}_3\) and \(-\text{CH}_2 \text{OH}, \) and \(R_1\) represents a radical which is:

\( \text{i) } -\text{CH}_3 \)

\( \text{ii) } -\text{CH}_2 - \text{CH} = \text{CH}_2 \)

\( \text{iii) } -\text{CH}_2 - \text{CH}_2 \text{OH} \)

\( \text{iv) } -(\text{CH}_2)_m - \text{CH} - \text{COOH}, \ m \) being 1 or 2 and \(R_4\) representing \(\text{NH} - R_4\)
a hydrogen atom or the radical \(-\text{COR}_5\), \(R_5\) being a saturated or unsaturated aliphatic, e.g. alkyl, radical having from 1 to 8 carbon atoms,

\(\text{(v)} \quad -\text{CH}_2\text{COR}_6, R_6 \text{ representing a radical } -\text{OH or } -\text{N}^{r'\prime} \),

\(r'\) and \(r''\), which are identical or different, representing a hydrogen atom or an alkyl radical having from 1 to 5 carbon atoms, or \(r'\) and \(r''\) together forming a divalent radical of the formula: \(-(\text{CH}_2)_{12}\text{O}-(\text{CH}_2)_{12}\) or of the formula: \(-(\text{CH}_2)_{5}\)

\(\text{(vi)} \quad -\text{CH}_2\text{-}, \text{ in which case } R_2 \text{ only represents a hydrogen atom if } R_3 \text{ represents a hydrogen atom, and}

\(\text{(vii)} \quad -\text{NH}_2 \text{ or the radical } -\text{COOH, in which latter case } R_2 \text{ and } R_3 \text{ are not hydrogen atoms, and to the salts of the said.}

The present invention also provides a process for the preparation of these compounds. They are generally prepared by reacting an oxirane with a compound of the formula (II):
The oxirane used can be ethylene oxide (R₃=H), propylene oxide (R₃= -CH₃) or glycidol (R₃ = -CH₂OH).

The addition reaction can be carried out in a variety of solvents but is preferably carried out in a polar solvent medium such as water or an alcohol, used alone or as a mixture.

If the radical R₁ contains an acid group, the latter is preferably neutralised beforehand with an alkali metal hydroxide.

The addition reaction is suitably carried out at 0° to the boiling point of the solvent, depending on the oxirane used. It can also be brought to completion by leaving the reactants to stand for several days at ambient temperature.

The reaction product is generally isolated by concentrating the mixture under reduced pressure, after neutralisation, if appropriate, with an acid. The resulting compound can optionally be purified by passing it over silica gel or over an ion exchange resin (if the reaction mixture contains inorganic salts) or by washing or by crystallisation using a suitable solvent.
The compounds of the formula (I) in which the radical \( R_2 \) is the radical \(-\text{CH}_2\text{-CH-}R_3\) can be obtained directly from a compound of the formula (II) in which \( R_2 = \text{H} \) by adding two equivalents of oxirane.

Although the compounds of the formula (I) are preferably obtained in accordance with the process described above, they can also be obtained by reacting a hydroxyalkyl halide with a compound of the formula (II) in accordance with the following equation:

\[
\begin{align*}
\text{R}_1\text{-S} & \quad \text{CH}_2\text{-CH}_2\text{-NH-}R_2 \\
(\text{O})_n \\
(\text{II}) \\
\downarrow \\
\text{R}_1\text{-S} & \quad \text{CH}_2\text{-CH}_2\text{-N-CH}_2\text{-CH-}R_3 + \text{XH} \\
(\text{O})_n \\
\text{X} & \text{= Cl or Br}
\end{align*}
\]

The compounds, according to the invention, in which the radical \( R_2 = \text{H} \) and \( n = 0 \) can also be prepared by adding a thiol \( \text{R}_1\text{SH} \) to a \( N \)-hydroxyalkylaziridine in accordance with the following equation:

\[
\begin{align*}
\text{R}_1\text{-SH} + \text{CH}_2\text{-CH}_2 & \rightarrow \text{R}_1\text{-S} & \quad \text{CH}_2\text{-CH}_2\text{-NH-CH}_2\text{-CH-}R_3 \\
& \quad \text{CH}_2\text{-OH} \\
& \quad \text{CH}_2\text{-OH} \\
& \quad \text{CH}_3
\end{align*}
\]

The reaction conditions are analogous to those relating to the reaction of an oxirane with a thioether.
If the thiol R₁-SH contains a carboxylic acid group, the latter can optionally be neutralised prior to the reaction with the substituted aziridine.

In order to obtain the active ingredients in the form of a salt, it is generally possible to add, at ambient temperature, a solution of the active ingredient which it is desired to salify to an equimolecular solution of the inorganic or organic acid corresponding to the desired salt.

The solvents used, which are identical or different, are generally alcohols or chlorohydrocarbons. The mixture is generally stirred for about one hour and then concentrated under reduced pressure. The evaporation residue is then washed with ether and finally dried at 50°C in vacuo over phosphorus pentoxide.

If dicarboxylic acids are used as the organic acid, it is possible to obtain, in a similar manner, either the mono-salt or the di-salt, depending on whether one mol of amine or two mols of amine are used, respectively, per mol of acid.

Activity of the compounds according to the invention

In order to demonstrate the specific properties of the compounds according to the invention, epidermal lipid levels were determined following the repeated application of these compounds and were compared with the application of placebo solution and also with the application of compounds
possessing similar structures to the compounds of the formula (I). It is known that the greasy appearance of the skin or hair is related to the level of lipids present in the epidermis.

In order to ensure that these comparative determinations were of good statistical significance, the studies were carried out on a genetically stable and monitored subject, who had been conditioned beforehand by a specific diet in order to establish a characterised greasy (seborrheic) condition, in accordance with the method described by AUBIN et al. in Parf. Cosm. Sav. France, 1971, Volume 1, No. 8.

The substances tested were applied to the skin, at a concentration of 80 millimols per litre, for twelve consecutive days. The level of epidermal lipids was compared with that of the control subjects, of strictly equal age, who had received, with the same frequency, the same number of applications of a control solution (water).

The comparative study involved the following compounds:

Compounds:

A. \( \text{C}_6\text{H}_5\text{-CH}_2\text{-S-CH}_2\text{-CH}_2\text{-NH}_2 \cdot \text{HCl} \)

B. \( \text{C}_6\text{H}_5\text{-CH}_2\text{-S-CH}_2\text{-CH}_2\text{-NCH}_3 \cdot \text{HCl} \)

C. \( \text{C}_6\text{H}_5\text{-CH}_2\text{-S-CH}_2\text{-CH}_2\text{-N}^{\text{CH}_3} \cdot \text{HCl} \).
The epidermal lipid measurements gave the following results, expressed in μg per cm² in (mean values):

<table>
<thead>
<tr>
<th>Untreated control</th>
<th>Subject A</th>
<th>Subject B</th>
<th>Subject C</th>
<th>Subject D</th>
<th>Subject E</th>
<th>Subject F</th>
<th>Subject G</th>
<th>Subject H</th>
<th>Subject I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.693</td>
<td>1.708</td>
<td>1.772</td>
<td>2.674</td>
<td>2.508</td>
<td>1.556</td>
<td>1.653</td>
<td>1.657</td>
<td>1.687</td>
</tr>
<tr>
<td>%</td>
<td>-10.18</td>
<td>-6.6</td>
<td>4.18</td>
<td>2.6</td>
<td>-4.5</td>
<td>-5.6</td>
<td>-3.8</td>
<td>-1.6</td>
<td>-2.8</td>
</tr>
</tbody>
</table>

These results reveal that the substitution of the primary amine by a methyl radical (compound F) almost completely nullifies the activity observed with compound A. The double substitution, by which compound A is converted to a tertiary amine, manifests itself, in the representative compounds C, D, E and F, in a considerable increase in the level of epidermal lipids, compared with the level...
observed with the seborrheic subjects to whom no substance has been applied. This increase in the lipids ranges from +19% to +42%. On the other hand, and completely unpredictably, the compounds according to the invention (compounds G, H and I) give completely opposite results which are even lower than the most active reference compound (compound A).

The following Examples further illustrate the present invention.

**PREPARATION EXAMPLES**

Example 1:

**2-[2-(Hydroxyethylamino)-ethylthio]-benzoic acid**:

Cc pound 31.

A solution of 0.16 g of thiosalicylic acid in 60 ml of methanol is stirred at ambient temperature under a nitrogen atmosphere. A solution of 3.48 g of N-(2-hydroxyethyl)-aziridine in 40 ml of methanol is added dropwise. The precipitate formed is filtered off and drained and the filtrate is concentrated. The residue obtained, together with the precipitate, is then crystallised from ethanol and this yields 9 g of a white product which melts at 235°.

Analysis: C_{11}H_{15}NO_{3}S
It can be neutralised in situ in the composition, either totally or partially, respectively with an inorganic or organic base or with an inorganic or organic base.

Example 2:

N-(2-Methylphenoxyethyl)-6-hydroxyethylamine: Compound 1.

A mixture of N-(2-hydroxyethyl)-aziridine (25.8 g) and sodium methanethiolate (21 g) in ethanol is heated to the boil under a nitrogen atmosphere. When the reaction is complete, the mixture is neutralised with one equivalent of 5 N hydrochloric acid and then concentrated under reduced pressure. The residue is extracted with chloroform and then distilled after removal of the solvent. 28 g of a colourless oil which boils at 145° under a pressure of 26 mm Hg are collected.

Amine number: Calculated 7.40 milliequivalents/g

Found 7.40 milliequivalents/g

Example 3

N-(2-Methylsulphinylethyl)-6-hydroxyethylamine: Compound 2.

One equivalent of hydrogen peroxide is added dropwise to a solution of 13.5 g of compound 1 (obtained in accordance with Example 2) in methanol, the temperature being kept below 30°. When the reaction is complete, the solvent is evaporated off under reduced pressure and the residue is purified by filtration on silica gel. This yields 8 g of a colourless oil which is a hemihydrate of compound 2.

Analysis: C_{9}H_{13}NO_{2}S \cdot \frac{1}{2}H_{2}O

Calculated %  C 37.40  H 8.78  N 8.75  S 20.00
Examples 4 and 5

3-N-[2-(6-Hydroxyethylamino)-ethylthio]alanine : Compound 12

An aqueous-alcoholic solution of N-(2-hydroxyethyl)-aziridine (8.7 g) is added dropwise to a solution of cysteine (12.1 g) in 200 ml of 50% strength aqueous ethanol, under a nitrogen atmosphere. The temperature of the reaction mixture is kept at 45° for 4 hours and the mixture is then left to stand for 24 hours at ambient temperature. The mixture is filtered and the filtrate is concentrated under reduced pressure. The residue, taken up in ethanol, gives a crystalline solid which is filtered off and drained. This yields 17 g of compound 12 which melts at 178°.

Analysis: C_{7}H_{16}N_{2}O_{3}S
Calculated % C 40.36 H 7.74 N 13.45 S 15.59
Found % 40.34 7.69 13.40 15.41

Compound 16 is prepared under the same conditions, the cysteine being replaced by N-acetylcysteine. It is obtained in the form of a colourless oil corresponding to a hemihydrate.

Analysis: C_{9}H_{18}N_{2}O_{4}S . 1/2 H_{2}O
Calculated % C 41.68 H 7.38 N 10.80 S 12.36
Found % 41.66 7.25 10.84 12.43

Example 6

2-(2-Hydroxyethylamino)-ethylthioacetic acid : Compound 23.

An equimolecular mixture of ethyl thioglycolate and
N-(2-hydroxyethyl)-aziridine in methanol is heated at the boil for two hours under a nitrogen atmosphere. The reaction mixture is concentrated under reduced pressure and the residue is stirred in a 2 N aqueous solution of potassium hydroxide, containing a small amount of ethanol. After 24 hours, the pH is brought to 4 by adding HCl. The reaction mixture is concentrated under reduced pressure and the residue is dissolved in boiling ethanol. The crystals formed on cooling are filtered off and dried (yield = 50%). Melting point: 110°.

Analysis: C_{6}H_{13}NO_{3}S
Calculated % C 40.21 H 7.31 N 7.82 S 17.89
Found % 40.07 7.07 7.64 17.86

Example 7

N-[2-(o-Aminophenylthio)-ethyl]-β-hydroxyethylamine: Compound 27

A methanolic solution of 3.48 g of N-(2-hydroxyethyl)-aziridine is added gradually to 5 g of o-aminothiophenol, dissolved in methanol. After 72 hours at ambient temperature, the reaction mixture is concentrated and the residue, dissolved in benzene, is filtered on silica gel. This yields 8 g of a pale yellow oil.

Analysis: C_{10}H_{16}N_{2}O_{8}
Calculated % C 56.57 H 7.59 N 13.19 S 15.10
Found % 56.39 7.81 13.02 14.96

Examples 8 to 11

N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-amine: Compound 38
A solution, heated to a temperature of 50°, of 50 g of 2-benzylthioethylamine in 150 ml of absolute alcohol is placed in a reactor equipped with a brine condenser and a diffuser. After having purged the solution with a stream of nitrogen, a slow stream of ethylene oxide is passed until it is no longer absorbed by the solution. Nitrogen is bubbled again, the solution is then concentrated under reduced pressure and the oily residue is dried over phosphorus pentoxide. This yields 74 g of an oil, the analysis and the NMR spectrum of which correspond to the expected product.

Analysis: $C_{13}H_{21}NO_2S$

Calculated % C 61.14  H 8.29  N 5.49  S 12.56
Found %  60.93  8.34  5.64  12.40

Compounds 3, 4 and 25, obtained in the form of hygroscopic colourless oils, are prepared under the same conditions.

<table>
<thead>
<tr>
<th>Example</th>
<th>Compound No.</th>
<th>Yield %</th>
<th>Analysis: Calculated % Found %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>25</td>
<td>9</td>
<td>60</td>
<td>43.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>43.17</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>70</td>
<td>39.79</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>39.60</td>
</tr>
<tr>
<td>11</td>
<td>25 (hemihydrate)</td>
<td>99</td>
<td>47.81</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>47.98</td>
</tr>
</tbody>
</table>
Example 12

N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-amine :

Compound 40.

Three equivalents of propylene oxide are added dropwise, whilst stirring, to a solution, cooled to 0°, of 16.7 g of 2-benzylthioethylamine in 96° strength ethanol. The reaction mixture is heated at 30° for six hours, it is then concentrated under reduced pressure and the residual oil obtained is dried in a desiccator containing phosphorus pentoxide.

28 g of a pale yellow oil are collected.

Analysis : C_{15}H_{25}NO_{2}S

Calculated %  C 63.56  H 8.89  N 4.94  S 11.31

Found %  63.76  8.74  5.08  11.55

Examples 13 to 24

N-(2-Methylsulphinylethyl)-bis-(2-hydroxypropyl)-amine :

Compound 5

Three equivalents of propylene oxide are added dropwise, at a temperature below 10° and whilst stirring, to an aqueous solution of 2-methylsulphinylethylamine (10.7 g). The mixture is allowed to return to ambient temperature and is left to stand for 30 hours (the course of the reaction is followed by thin layer chromatography). It is then concentrated on a rotary evaporator and the residual oil is dried in a desiccator in vacuo and over phosphorus pentoxide. 21.5 g of a colourless oil are thus obtained.
Analysis: C\textsubscript{9}H\textsubscript{21}NO\textsubscript{3}S

Calculated %: C 48.40  H 9.48  N 6.27  S 14.36

Found %: 48.48  9.50  6.12  14.23

The compounds summarised in the following Table II are prepared in the same manner:

<table>
<thead>
<tr>
<th>Example No.</th>
<th>Compound</th>
<th>Yield %</th>
<th>Analysis: Found</th>
</tr>
</thead>
<tbody>
<tr>
<td>15: 8: 67(1):</td>
<td>52.98: 9.29: 5.61: 12.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17: 11: 99:</td>
<td>47.40: 9.15: 5.52: 12.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19: 24: 50(2):</td>
<td>47.79: 8.42: 5.57: 12.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20: 26: 90(3):</td>
<td>52.47: 8.80: 8.74: 10.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(1) Purified by passage over silica gel.
(2) One equivalent of sodium hydroxide is added at the start of the reaction and one equivalent of hydrochloric acid is added after the end of the reaction. The reaction mixture is filtered on an acid exchange resin.
(3) Reaction solvent: methanol.

**Example 25**

**N-(2-Benzylthioethyl)-N-(2-hydroxyethyl)-2-hydroxypropylamine**: Compound 42

A mixture of 3.3 g of compound 37 in ethanol (30 ml), to which 1 g of propylene oxide in water (15 ml) has been added, is left to stand for 24 hours. It is concentrated under reduced pressure and the residual viscous liquid is dried in a desiccator. This yields 3.8 g of compound 42.

Amine number: Calculated: 3.72 milliequivalents/g
Found: 3.72 milliequivalents/g

**Example 26**

**N-(2-Benzylthioethyl)-bis-(2,3-dihydroxypropyl)-amine:**

**Compound 39**

A mixture of 2-benzylthioethylamine (13 g) and excess glycidol (14.5 g) in toluene (200 ml) is heated at the boil for 3 hours; the product formed separates out in the form of an oil on cooling. The latter is separated from the toluene phase and washed with benzene. 24.5 g of compound 39 are thus obtained in the form of the monohydrate.
Amine number: Calculated: 3.02 milliequivalents/g
          Found : 3.02 milliequivalents/g

Examples 27 and 28

N-(2-Methylsulphinylethyl)-bis-(2,3-dihydroxypropyl)-amine:

5 Compound 6.

A solution of 14 g of 2-methylsulphinylethylamine and 19.5 g of glycidol in 50 ml of ethanol is heated at the boil for 8 hours. The reaction mixture is concentrated under reduced pressure and the oily residue obtained is purified by passing it over silica gel. 32 g of compound 6 are collected.

Analysis: C_{9}H_{12}NO_{5}S
          Calculated % C 42.33 H 8.29 N 5.49 S 12.56
          Found   % C 42.11 H 8.54 N 5.46 S 12.37

Compound 42, which is obtained with a yield of 60% in the form of the hemihydrate, is prepared in the same manner.

Analysis: C_{14}H_{23}NO_{5}S \cdot 1/2 H_{2}O
          Calculated % C 57.06 H 8.15 N 4.75 S 10.89
          Found   %  56.98 H 8.13 N 4.63 S 10.57

Example 29

N-[2-(o-Aminophenylthio)-ethyl]-bis-(2,3-dihydroxypropyl)-
amine: Compound 29.

A solution of 16.8 g of 2-(o-aminophenylthio)-ethylamine and 14.8 g of glycidol in 96° strength ethanol is left to stand for six days at ambient temperature. The reaction mixture is concentrated under reduced pressure and the
oily residue is washed with toluene and then dried in a desiccator in the presence of phosphorus pentoxide. 29 g of compound 29 are thus obtained.

Analysis : C_{14}H_{24}N_{2}O_{4}S

Calculated % : C 53.14  H 7.64  N 8.85  S 10.13

Found    % : 52.88  7.61  8.76  9.94

Example 30

2-Acetamido-3-[2-{bis-(2,3-dihydroxypropyl)-amino}ethyl-thio]-propionic acid : Compound 18

A solution of 20.6 g of 2-acetamido-3-(β-aminoethyl-thio)-propionic acid, 4 g of sodium hydroxide and 14.8 g of glycidol in 50% strength aqueous ethanol is heated for 7 hours at a temperature of 40°C. One equivalent of hydrochloric acid is added-and the mixture is purified by passing it over an ion exchange resin (H⁺). After evaporating off the solvent under reduced pressure, 19 g of a viscous liquid, which crystallises in the form of a monohydrate melting at 90°C, are obtained.

Analysis : C_{13}H_{26}N_{2}O_{7}S . H_2O

Calculated % : C 41.92  H 7.58  N 7.52  S 8.61

Found    % : 41.84  7.57  7.62  8.87

Example 31

2-[2-{bis-(2,3-dihydroxypropyl)-amino}ethylsulphinyl]-benzoic acid : Compound 36.

This compound is prepared in the same manner as compound 18 (Example 30) from glycidol and 2-(β-aminoethyl-sulphinyl)-benzoic acid.
Preparation of 2-(β-aminoethylsulphinyl)-benzoic acid

A solution of 8.6 g of ethyleneimine in 200 ml of ethanol is added slowly, at 35°, under a nitrogen atmosphere, to an ethanolic solution of thiosalicylic acid (30.8 g). The 2-(β-aminoethylthio)-benzoic acid formed precipitates as the addition proceeds. It is filtered off and crystallised from a mixture of water and acetonitrile. This yields 37 g of crystals which melt at 120° (monohydrate) with formation of the anhydrous product which decomposes above 200°.

21.5 g of this product are dissolved in acetic acid, and 10 ml of hydrogen peroxide of 110 volumes strength are then added dropwise at 0°. The mixture is left to stand for 5 days at ambient temperature, it is then concentrated under reduced pressure and the residuo is crystallised from water. 19.5 g of 2-(β-aminoethylsulphinyl)-benzoic acid, which melts at 240°, are collected.

Analysis: C_{15}H_{23}NO_{7}S
Calculated %: C 48.63  H 6.52  N 3.78  S 15.78
Found %:   48.60  6.89   3.71

Compound 36 is obtained in the form of a yellow oil corresponding to a hemihydrate.

Analysis: C_{15}H_{23}NO_{7}S 1/2 H_{2}O.
Calculated %: C 48.63  H 6.52  N 3.78
Found %:   48.60  6.89   3.71
EXAMPLES OF THE PREPARATION OF THE SALTS

Example 32

N-(2-Benzylthioethyl)-bis-(2-hydroxyethyl)-amine hydrochloride: Compound 38a.

A solution (45 ml) of 4 N hydrochloric acid in ethanol is added to an ethanolic solution of compound 38 (38 g). After two hours at ambient temperature, the solution obtained is concentrated and the residue is crystallised from 1,2-dichloroethane. After drying, 33 g of a compound which melts at 77° are collected.

Analysis: C_{13}H_{22}ClNO_{2}S
Calculated %: C 53.50 H 7.60 N 4.80 S 10.99
Found %: 53.33 7.58 4.57 10.82

Examples 33 and 34

N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-amine hydrochloride: Compound 40a

30 ml of a 4 N solution of hydrochloric acid in ethanol are added to 30 g of compound 40, dissolved in chloroform. The mixture is left to stand for two hours at ambient temperature and 80 ml of ether are then added; compound 40a crystallises. After filtration and drying, 30 g of crystals which melt at 95° are collected.

Analysis: C_{15}H_{26}ClNO_{2}S
Calculated %: C 56.32 H 8.19 N 4.38 S 10.02
Found %: 56.32 7.96 4.41 10.08

The hydrochloride 42a, which melts at 86°, is obtained from compound 42 in accordance with the same pro-
Examples 35 and 36

N-(2-Benzylthioethyl)-bis-(2-hydroxypropyl)-ammonium gentisate: Compound 40b.

A methanolic solution containing 4.6 g of gentisic acid is added to 8.5 g of compound 40, dissolved in methanol, and the mixture is stirred for 1 hour at ambient temperature. The solution obtained is concentrated under reduced pressure and the residue is filtered off and washed with ether. After drying, 12.9 g of white crystals which melt at 59° are obtained.

Analysis: C\textsubscript{22}H\textsubscript{31}NO\textsubscript{6}S

Calculated %: C 60.38, H 7.14, N 3.20, S 7.32

Found %: 60.38, 7.16, 3.41, 7.34

Compound 27b is prepared in the same manner from compound 27 and p-chlorophenoxyisobutyric acid; it is obtained in the form of whitish crystals which melt at 58°.

Analysis: C\textsubscript{20}H\textsubscript{27}ClN\textsubscript{2}O\textsubscript{4}S

Calculated %: C 56.26, H 6.37, N 6.56, S 7.51

Found %: 56.03, 6.49, 6.51, 7.70

Examples 37 to 59

The salts of compounds 7, 26, 27, 38, and 40, which are summarised in the following Table III, were also prepared in accordance with the same procedure as that described.
the level of epidermal lipids, compared with the level

cried in Examples 32 to 36 (the salts are oily or semi-
solid and strongly hygroscopic):

TABLE III

| Ex- | Compound, Empirical formula | Analysis : Calculated % | %
|-----|-----------------------------|--------------------------|-----
| 37  | 7a  : C_{15}H_{29}NO_{8}S | 46.98 : 7.62 : 3.65 : 8.36 |
| 38  | 7b  : C_{21}H_{34}Cl NO_{5}S | 56.29 : 7.64 : 3.12 : 7.15 |
| 39  | 26a : C_{14}H_{29}ClNO_{4}S | 56.00 : 7.56 : 2.51 : 6.98 |
| 40  | 26c : C_{24}H_{39}Cl NO_{7}S | 51.97 : 7.46 : 4.84 : 6.08 |
| 41  | 26d : C_{32}H_{62}N_{13}S_{2} | 49.59 : 8.06 : 7.22 : 8.27 |
| 42  | 56e : C_{32}H_{62}NO_{4}S_{2} : 46.47 : 8.06 : 6.77 : 7.75 |
| 43  | 27a : C_{17}H_{32}NO_{8}S | 55.72 : 6.05 : 7.64 : 8.75 |
| 44  | 27c : C_{24}H_{38}N_{4}O_{5}S | 51.59 : 51.97 : 10.27 : 11.33 |
| 45  | 27e : C_{14}H_{22}O_{5}S | 48.54 : 6.40 : 8.01 : 9.22 |
| 46  | 27d : C_{24}H_{38}N_{4}O_{5}S | 50.15 : 6.66 : 9.94 : 11.16 |
| 47  | 38b : C_{16}H_{25}NO_{5} | 55.95 : 7.33 : 4.07 : 9.33 |
| 48  | 38a : C_{19}H_{22}ClNO_{5}S | 58.77 : 6.86 : 2.98 : 6.82 |
| 49  | 38d : C_{18}H_{28}N_{2}O_{5}S | 53.71 : 7.51 : 6.96 |
| 50  | 38a : C_{17}H_{27}NO_{7}S | 52.42 : 6.98 : 3.59 : 8.23 |

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v) -CH₃-COR, Rₙ representing a radical -OH or
## TABLE III (Continuation)

<table>
<thead>
<tr>
<th>Example</th>
<th>Compound</th>
<th>Empirical formula</th>
<th>Analysis</th>
<th>Calculated %</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>H</td>
<td>N</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>38f</td>
<td>C&lt;sub&gt;20&lt;/sub&gt;H&lt;sub&gt;27&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>58.66 : 6.64</td>
<td>3.42 : 7.83</td>
<td></td>
</tr>
<tr>
<td>38g</td>
<td>C&lt;sub&gt;19&lt;/sub&gt;H&lt;sub&gt;31&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>50.76 : 6.95</td>
<td>3.11 : 7.13</td>
<td></td>
</tr>
<tr>
<td>38h</td>
<td>C&lt;sub&gt;18&lt;/sub&gt;H&lt;sub&gt;27&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>51.53 : 6.96</td>
<td>3.34 : 7.64</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38i</td>
<td>C&lt;sub&gt;19&lt;/sub&gt;H&lt;sub&gt;31&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>51.68 : 6.82</td>
<td>3.58 : 7.92</td>
<td></td>
</tr>
<tr>
<td>40c</td>
<td>C&lt;sub&gt;19&lt;/sub&gt;H&lt;sub&gt;31&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>54.65 : 7.48</td>
<td>3.35 : 7.67</td>
<td></td>
</tr>
<tr>
<td>40d</td>
<td>C&lt;sub&gt;19&lt;/sub&gt;H&lt;sub&gt;31&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>58.88 : 8.58</td>
<td>3.61 : 8.27</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40e</td>
<td>C&lt;sub&gt;18&lt;/sub&gt;H&lt;sub&gt;29&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>58.19 : 7.86</td>
<td>3.77 : 8.63</td>
<td></td>
</tr>
<tr>
<td>40f</td>
<td>C&lt;sub&gt;20&lt;/sub&gt;H&lt;sub&gt;31&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>53.67 : 7.43</td>
<td>3.12 : 7.16</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40g</td>
<td>C&lt;sub&gt;21&lt;/sub&gt;H&lt;sub&gt;33&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>52.81 : 7.38</td>
<td>2.93 : 6.71</td>
<td></td>
</tr>
<tr>
<td>40h</td>
<td>C&lt;sub&gt;19&lt;/sub&gt;H&lt;sub&gt;33&lt;/sub&gt;N&lt;sub&gt;6&lt;/sub&gt;O&lt;sub&gt;5&lt;/sub&gt;S</td>
<td>58.88 : 8.58</td>
<td>3.61 : 8.27</td>
<td></td>
</tr>
</tbody>
</table>

### COMPOSITION EXAMPLES

**Example A**  Cream for greasy skin

<table>
<thead>
<tr>
<th>Compound</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>39c</td>
<td>1.5 g</td>
</tr>
<tr>
<td>Benzalkonium chloride</td>
<td>0.3 g</td>
</tr>
<tr>
<td>Glycol stearate</td>
<td>1 g</td>
</tr>
<tr>
<td>Cetyl alcohol</td>
<td>4 g</td>
</tr>
<tr>
<td>Polyoxyethylene stearate containing 20 mols of ethylene oxide (per mol of stearate)</td>
<td>6 g</td>
</tr>
<tr>
<td>Isopropyl palmitate</td>
<td>10 g</td>
</tr>
<tr>
<td>Calophyllum oil</td>
<td>1 g</td>
</tr>
<tr>
<td>Preservative (para-hydroxybenzoates)</td>
<td>0.3 g</td>
</tr>
</tbody>
</table>
Perfume q.s.
Sterile demineralized water q.s.p. .............. 100 g

The daily application of this cream makes it possible substantially to improve the greasy appearance of the skin. A comparable effect can be achieved by replacing compound 38c by compounds 40d, 40f or 40g.

Example B Lotion for greasy hair
Compound 40 ...................................... 0.8 g
Calcium pantothenate ............................ 0.5 g
Perfume ........................................... 0.1 g
40% strength aqueous ethyl alcohol q.s.p. ........100 ml

Example C Dermatological block
Alkanoyl oxyethanesulphonate ................... 80 g
Lantrol : liquid fraction of lanoline (Malmöström) ........................................ 12 g
Perfume ........................................... 0.1 g
40% strength aqueous ethyl alcohol q.s.p. ........100 ml

Example D Lotion to be used daily for the care of greasy hair
Pyridoxine camphosulphonate ................... 0.3 g
Perfume ........................................... 0.1 g
Dyestuff .......................................... 0.1 g
Compound 26b ................................... 0.4 g
Example 6

2-(2-Hydroxyethylamino)-ethylthioacetic acid: Compound 23.

An equimolecular mixture of ethyl thioglycolate and

50% strength ethyl alcohol q.s.p. ............... 100 ml

Compound 26b can be replaced by compounds 26d or
26e at a concentration of 0.7 g.

Example E  Milk for greasy skin

5 Compound 31 .................................. 1.4 g
Crosslinked polyacrylic acid marketed under the
trademark "CARBOPOL 934" ....................... 0.375 g
Isopropyl ester of lanoline fatty acids ........ 1  g
10 Lanoline oxyethyleneated with 5 to 20 mols
of ethylene oxide ............................... 2.5 g
Oxyethyleneated cetyl/stearl alcohol ............ 3  g
Myristyl monoethanolamide ..................... 2  g
Triethanolamine q.s.p. pH 8
Methyl para-hydroxybenzoate ................. 0.1 g
Propyl para-hydroxybenzoate .................. 0.1 g
Water q.s.p. ................................. 100 g

Compound 31 can be replaced by compound 32 in this
composition.

Example F  Powder shampoos

20 Sodium lauryl-sulphate .......................... 40 g
Product resulting from the condensation of copra
fatty acids with sodium isocyanate, marketed
under the name "HOSTAPON K.A." by the
Société HOECHST .................................. 39 g

25 Compound 12 .................................. 10 g
Perfume ........................................... 1  g

Example G  Fluid styling gel, intended for daily application.
Vinylpyrrolidone/vinyl acetate copolymer (70/30) 2 g
Lanoline oxyethyleneated with 5 to 20 mols of
ethylene oxide .................................. 1  g
### Example H  Lotion for greasy hair

Lotion to be used after shampooing, on wet hair, before wavesetting.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene glycol 300</td>
<td>5.0 g</td>
</tr>
<tr>
<td>Compound 7</td>
<td>0.5 g</td>
</tr>
<tr>
<td>Methyl para-hydroxybenzoate</td>
<td>0.1 g</td>
</tr>
<tr>
<td>Propyl para-hydroxybenzoate</td>
<td>0.1 g</td>
</tr>
<tr>
<td>t-Butyl-hydroxytoluene</td>
<td>0.1 g</td>
</tr>
<tr>
<td>t-Butyl-hydroxyanisole</td>
<td>0.2 g</td>
</tr>
<tr>
<td>Perfume</td>
<td>0.1 g</td>
</tr>
<tr>
<td>Water q.s.p.</td>
<td>100 ml</td>
</tr>
</tbody>
</table>

### Example I  Milk for greasy skin

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound 33</td>
<td>2.6 g</td>
</tr>
<tr>
<td>Crosslinked polyacrylic acid known under the trademark CARBOPOL 934</td>
<td>0.375 g</td>
</tr>
<tr>
<td>Isopropyl ester of lanoline fatty acids</td>
<td>1.0 g</td>
</tr>
<tr>
<td>Lanoline oxyethylolened with 5 to 20 mols of ethylene oxide</td>
<td>2.5 g</td>
</tr>
<tr>
<td>Oxyethylolened cetyl/stearyl alcohol</td>
<td>3.0 g</td>
</tr>
<tr>
<td>Copra monoethanolamide</td>
<td>2.0 g</td>
</tr>
<tr>
<td>Triethanolamine q.s.p. pH 8</td>
<td></td>
</tr>
<tr>
<td>Methyl para-hydroxybenzoate</td>
<td>0.1 g</td>
</tr>
<tr>
<td>Propyl para-hydroxybenzoate</td>
<td>0.1 g</td>
</tr>
<tr>
<td>Water q.s.p.</td>
<td>100 ml</td>
</tr>
</tbody>
</table>
Example J  Clear liquid shampoo

Polyoxyethyleneated lauryl alcohol (containing 12 moles of ethylene oxide) .......................... 13 g
Copra diethanolamide .............................................. 4 g
5 Quaternised vinylpyrrolidone copolymer marketed under the name GAFQUAT 755 by GAF .... 0.4 g
Compound 38f ......................................................... 3 g
Perfume ...................................................................... 0.2 g
Water .......................................................... q.s.p. .......................... 100 ml

In this example, compound 38f can be replaced by the same amount of compound 40c.

Example K  Cream shampoo

Sodium lauryl-sulphate ............................................... 12 g
Product resulting from the condensation of copra fatty acids with methylaureine, this being a paste which is marketed under the name "HOSTAPON C.T" by the Société HOECHST ......................... 40 g
Lauryl monoethanolamide ............................................ 2 g
Glycerol monostearate ................................................... 4 g
Compound 39 ................................................................. 2 g
Perfume ...................................................................... 0.2 g
Lactic acid .................................................. q.s.p. pH 6.5
Water .......................................................... q.s.p. .......................... 100 g

Example L  Pearlescent liquid shampoo

Oxyethyleneated sodium lauryl-sulphate containing 2.2 moles of ethylene oxide ......................... 9 g
Sodium monolauryl-sulphosuccinate ................................ 1 g
Polyethylene glycol distearate ........................................... 2 g
Lauryl diethanolamide ................................................... 2 g
Compound 5 ................................................................. 4 g
phosphorus pentoxide. 21.5 g of a colourless oil are thus obtained.

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Perfume ........................................ 0.3 g
Water .................. q.s.p. .............. 100 g

Compound 5 can be replaced by compounds 6 or 24.

Example M Cream for greasy hair

5 Polyoxyethyleneated stearate (Myrj 49) .......... 3 g
Glycerol monostearate .................................. 4 g
Cetyl alcohol ...................................... 7 g
Vaseline oil .................................... 8 g
Isopropyl myristate .................................. 5 g

10 Compound 38d .................................. 12 g
Methyl para-hydroxybenzoate ...................... 0.3 g
1% strength solution of crosslinked polyacrylic acid sold under the tradename "Carbopol 941" by the Société GOODRICH ......................... 40 g
Triethanolamine q.s.p. .... pH 6.5

15 Water ............... q.s.p. ................ 100 g

This cream is applied to the scalp after shampooing. The hair is massaged lightly, left for about 15 minutes and then rinsed.

In this example, the active ingredient can advantageously be replaced by the same amount of compound 40h.

Example N Lotion for greasy skin

Compound 38 .......................... 0.6 g
50% strength pyrrolidonecarboxylic acid solution ........................................... 3 g

25 Water-soluble neopurcellin oil, namely branched esters of polyoxyethyleneated fatty acids (containing 4 moles of ethylene oxide) ... 0.5 g
Perfume .......... q.s.
Preservative .................. 0.2 g
Water q.s.p. ............................................. 100 g

Compound 38 can be replaced by compounds 39 or 40.

Example Q Lacquer for greasy hair

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

Poly-(vinylpyrrolidone/vinyl acetate) resin sold under the tradename "E 335" by the Société GENERAL ANILIN ............................................. 10 g

Compound 37a ............................................. 0.5 g

Methylcellosolve ......................................... 2 g

Absolute alcohol ........... q.s.p. ...................... 100 g

Example P Treating lotion for the skin

Compound 40 ............................................. 1.8 g

Nicotinic acid ........................................... 0.8 g

Benzalkonium chloride .................................. 0.2 g

Ethyl alcohol ........................................... 13 ml

Polyethylene glycol ................................... 10 g

Perfume q.s.

Soluble dyestuffs q.s.

Sterile demineralised water q.s.p. ..................... 100 g

Example Q Cream for greasy skin

Polyoxyethyleneated sorbitan monostearate (Tween 60) ............................................. 1 g

Self-emulsifiable glyceryl monostearate ............. 6 g

Stearyl alcohol ......................................... 1.5 g

Stearic acid ............................................ 2 g

Vaseline oil ............................................ 15 g

Sweet-almond oil .................................... 2 g

Triethanolamine ....................................... 0.1 g
of compound 39 are thus obtained in the form of the mono-
hydrate.

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<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfume</td>
<td>0.4 g</td>
</tr>
<tr>
<td>Water</td>
<td>q.s.p. 100 g</td>
</tr>
</tbody>
</table>

**Example R** Lotion for greasy skin

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound 39</td>
<td>0.4 g</td>
</tr>
<tr>
<td>Trans-sulpholane dio</td>
<td>0.4 g</td>
</tr>
<tr>
<td>3,6-Dioxoctanol</td>
<td>10 g</td>
</tr>
<tr>
<td>Ethanol</td>
<td>9 g</td>
</tr>
<tr>
<td>5-Amino-3-thiahexanedioic acid</td>
<td>0.3 g</td>
</tr>
<tr>
<td>Water</td>
<td>q.s.p. 100 g</td>
</tr>
</tbody>
</table>

**Example S** Cream for greasy skin

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sopal wax</td>
<td>5 g</td>
</tr>
<tr>
<td>Glyceryl monostearate</td>
<td>2 g</td>
</tr>
<tr>
<td>Hydrogenated polyisobutylene</td>
<td>3 g</td>
</tr>
<tr>
<td>Vaseline oil</td>
<td>3 g</td>
</tr>
<tr>
<td>Cetyl alcohol</td>
<td>1 g</td>
</tr>
<tr>
<td>Purcellin oil</td>
<td>3.5 g</td>
</tr>
<tr>
<td>Preservative</td>
<td>0.3 g</td>
</tr>
<tr>
<td>Compound 13</td>
<td>1.4 g</td>
</tr>
<tr>
<td>Salicylic acid</td>
<td>0.9 g</td>
</tr>
<tr>
<td>Water</td>
<td>q.s.p. 100 ml</td>
</tr>
</tbody>
</table>

**Example T** Face pack for greasy skin

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound 30</td>
<td>2 g</td>
</tr>
<tr>
<td>5-Amino-3-thiahexanedioic acid</td>
<td>1.2 g</td>
</tr>
<tr>
<td>Gelatine</td>
<td>1 g</td>
</tr>
<tr>
<td>Gum tragacanth</td>
<td>1 g</td>
</tr>
<tr>
<td>Bentonite</td>
<td>4 g</td>
</tr>
</tbody>
</table>
to stand for six days at ambient temperature. The reaction mixture is concentrated under reduced pressure and the

Kaolin ........................................ 26 g
Titanium dioxide ............................ 2 g
Camphor .................................. 0.04 g
Dyestuff q.s.
Perfume q.s.
Sterile demineralised water q.s.p. ......... 100 g

Example U Liquid shampoo

A liquid shampoo (to be left on the hair for 5
minutes before final rinsing) is prepared by mixing:

Polyglycerolated lauryl alcohol (containing 4 mols
of glycerol) .............................. 15 g
Quaternised vinylpyrrolidone copolymer marketed
under the name Gafquat 755 by GAF .............. 0.4 g
Compound 12 ............................... 3.6 g

Polyoxyethyleneated alkylamine marketed under
the name "Ethomeen 18/15" by Rhône Proligil .... 0.8 g
Lactic acid q.s.p. .... pH 6
Perfume q.s.
Water ............ q.s.p. ................. 100 ml

Example V Treatment face pack for greasy skin

Lanoline oxyethyleneated with 5 to 20 mols of
ethylen oxide ................................ 5 g
Cetyl alcohol ................................ 2 g
Self-emulsifiable ethylene glycol stearate .... 7 g
Codex vaseline ................................ 5 g
Kaolin ..................................... 10 g
Titanium oxide ............................ 8 g
Preservative ............................... 0.3 g
Compound 40 ............................. 1.4 g
Glutamic acid ........................................... 0.8 g
Water ................ q.s.p. .......................... 100 g

Example W  Face lotion

A lotion intended for combating the greasy appearance of the face is prepared by mixing the following ingredients:

Compound 27a ........................................... 1 g
Propylene glycol ....................................... 2 g
Sodium ethylenediaminotetraacetate ............... 0.1 g
Ethyl alcohol .......................................... 16 g
Methyl para-hydroxybenzoate ....................... 0.1 g
Propyl para-hydroxybenzoate ....................... 0.1 g
Perfume q.s.
Dyestuff q.s.
Water .......... q.s.p. ............................ 100 g

Compound 27a can be replaced by compound 40b.

Example X  Cream for greasy skin

Cetyl alcohol .......................................... 5 g
Isopropyl palmitate ................................. 6 g
Vaseline oil ........................................... 6 g
Polyoxyethylenated sorbitan monostearate
(Tween 60) ........................................... 4.5 g
Glyceryl monostearate ............................. 2 g
Preservative ......................................... 0.3 g
Compound 25 ......................................... 1.6 g
Aspartic acid ......................................... 0.8 g
Sterile demineralised water q.s.p. .............. 100 g

Compound 25 can be replaced by compounds 40, 26 or 38.
**Example Y. Lotion for greasy skin**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound 19</td>
<td>0.8 g</td>
</tr>
<tr>
<td>Hyamine 10 X, namely diisobutyl-cresoxyethoxy-ethyl-dimethylbenzylammonium chloride</td>
<td>0.3 g</td>
</tr>
<tr>
<td>Salicylic acid</td>
<td>0.2 g</td>
</tr>
<tr>
<td>Poly-(ethylene glycol) tert.-dodecyl thioether</td>
<td>0.1 g</td>
</tr>
<tr>
<td>Miranol C2M (hydroxyethyl-carboxymethyl-2-alkylimidazolinium compound)</td>
<td>10 g</td>
</tr>
<tr>
<td>Perfume q.s.</td>
<td></td>
</tr>
<tr>
<td>Sterile demineralised water q.s.p.</td>
<td>100 g</td>
</tr>
</tbody>
</table>

Compound 19 can be replaced by compound 31.
CLAIMS
The Claims defining the invention are as follows:

1. A composition suitable for application to the hair and/or skin, which comprises in an appropriate vehicle, at least one active ingredient of the general formula:

\[
R_1\text{-S-CH}_2\text{-CH}_2\text{-N-CH}_2\text{-CH-R}_3
\]

in which: \( n \) is 0, 1 or 2, \( R_2 \) represents either a hydrogen atom or a radical which is:

- \(-\text{CH}_2\text{-CH}_2\text{OH}, -\text{CH}_2\text{-CH-CH}_3 \) or \(-\text{CH}_2\text{-CH-CH}_2\text{OH}, R_3 \)
- \( \text{OH} \) \( \text{OH} \)

represents either a hydrogen atom or a radical which is: \(-\text{CH}_3 \) or \(-\text{CH}_2\text{OH}, \) and \( R_1 \) represents a radical which is:

i) \(-\text{CH}_3\),

ii) \(-\text{CH}_2\text{-CH = CH}_2\),

iii) \(-\text{CH}_2\text{-CH}_2\text{OH}, \)

iv) \(-\text{(CH}_2\text{)}_m\text{-CH-COOH}, m \) being 1 or 2 and \( R_4 \) representing a hydrogen atom or the radical \(-\text{COR}_5, R_5 \) being a saturated or unsaturated aliphatic radical having from 1 to 8 carbon atoms,
v) \(-\text{CH}_2\text{-COR}_6, \text{R}_6\) representing a radical \(-\text{OH}\) or \(-\text{N}^r\), \(r'\) and \(r''\), which are identical or different, representing a hydrogen atom or an alkyl radical having from 1 to 5 carbon atoms, or \(r'\) and \(r''\) together forming a divalent radical of the formula: \(-(\text{CH}_2)_2\text{-O-(CH}_2)_2^{-}\) or of the formula: \(-(\text{Cl})_2\text{-5}^{-}\).

vi) \(-\text{CH}_2\text{-}

vii) \(-\text{-CH}_2\text{R}_7\), \(R_7\) representing either the radical \(-\text{NH}_2\) or the radical \(-\text{COOH}\).

2. Composition according to Claim 1 in which the active ingredient is present partially or completely as a salt with an inorganic or organic acid.

3. Composition according to Claim 2, in which the inorganic or organic acid is: hydrochloric acid, hydrobromic acid, tartaric acid, malic acid, nicotinic acid, salicylic acid, N-oxoniicotinic acid, palmitic acid, gentisic acid, pyrrolidonecarboxylic acid, ascorbic acid, para-chloro-phenoxyisobutyric acid, retinoic acid, \(\alpha\)-hydroxyisobutyric acid, \(\alpha\)- or \(\beta\)-hydroxybutyric acid, 5-amino-3-thiahexanedioic acid, pyruvic acid, glycolic acid, citric acid, aspartic acid, glutamic acid, oxoglutaric acid, camphosulphonic acid,
thiodiglycolic acid or a uronic acid.

4. Composition according to any one of Claims 1 to 3, in which the active ingredient is one specifically identified herein as Compound No. 1 to 7, 7a, 7b, 8, 9, 9', 10 to 26, 26a to e, 27, 27a to e, 23 to 37, 37a, 38, 38a to h, 39, 40, 40a to 1, 41, 42, 42a or 43.

5. Composition according to any one of Claims 1 to 4, in which the active ingredient is present at a concentration of 0.1 to 20\% by weight based on the total weight of the composition.

6. Composition according to Claim 5 in which the active ingredient is present at a concentration of 1 to 10\% by weight based on the total weight of the composition.

7. Composition according to any one of the preceding claims, which is in the form of a suspension, a solution in water, an alcohol, or a mixture thereof, an oil, an emulsion or a gel, and is suitable for application to the scalp.

8. Composition according to any one of the preceding claims in the form of an alcoholic or aqueous-alcoholic solution, and containing a cosmetic resin.

9. Composition according to Claim 8, in which the resin is polyvinylpyrrolidone; a copolymer of vinylpyrrolidone and vinyl acetate; a copolymer of
Pyridoxine camphosulphonate \(0.3\) g
Perfume \(0.1\) g
Dyestuff \(0.1\) g
Compound 26b \(0.4\) g

vinyl acetate and an unsaturated carboxylic acid;
a copolymer of vinyl acetate, crotonic acid and an
acrylic or methacrylic acid ester; a copolymer of
vinyl acetate, crotonic acid and an alkyl vinyl ether;
or a copolymer of vinyl acetate, crotonic acid and a
vinyl ester of an acid having a long carbon chain, or
an allyl or methallyl ester of an acid having a long
carbon chain.

10. Composition according to Claim 8 or 9, which
contains a propellant gas liquefied under pressure.

11. Composition according to Claim 3 or 9, which
contains, in alcoholic or aqueous-alcoholic solution,
from 0.1 to 10%, but preferably from 1 to 3%, of active
ingredient and from 0.1 to 15% of resin.

12. Composition according to any one of Claims
1 to 5, which contains the active ingredient at a
concentration of 0.1 to 15% by weight and at least
one anionic, cationic, non-ionic or amphoteric detergent,
such that the composition is in the form of a shampoo.

13. Composition according to Claim 12 in which
the active ingredient is present at a concentration of
1 to 10% by weight.

14. Composition according to Claim 12 or 13 in
which the concentration of detergent is from 4 to 20%
by weight based on the total weight of the composition.
15. Composition according to Claim 14 in which the concentration of detergent is from 5 to 10% by weight.

16. Composition according to any one of Claims 1 to 5 suitable for application to the skin which contains the active ingredient at a concentration of from 0.1 to 15% by weight.

17. Composition according to Claim 16 in which the said concentration is from 1 to 5% by weight.

18. Composition according to Claim 16 or 17 which is in the form of an aqueous or aqueous-alcoholic lotion, a cream, a milk, a gel, a dermatological block or an aerosol foam.

19. Composition according to any one of the preceding claims which also contains at least one of a perfume, dyestuff, penetrating agent, surface-active agent, thickener, emulsifying agent, preservative, cationic compound, quaternary ammonium salt, vitamin, protein, hydrolysed peptide, starch derivative or cellulose derivative.

20. Composition according to Claim 1 substantially as described in any one of Examples A to Y.

21. A compound of the general formula:

\[
R_1-S-CH_2-CH_2-N-CH_2-CH-R_3
\]

\[
(O)_n \quad \text{OH}
\]

in which: \( n \) is 0, 1 or 2, \( R_2 \) represents either a hydrogen
atom or a radical which is \(-\text{CH}_2\text{-CH}_2\text{OH}, \text{-CH}_2\text{-CH-CH}_3\text{ or -CH}_2\text{-CH-CH}_2\text{OH}\), \(R_3\) represents either a hydrogen atom or a radical which is \(-\text{CH}_3\) or \(-\text{CH}_2\text{OH}\), and \(R_1\) represents a radical which is

i) \(-\text{CH}_3\),

ii) \(-\text{CH}_2\text{-CH} = \text{CH}_2\),

iii) \(-\text{CH}_2\text{-CH}_2\text{OH}\),

iv) \(-\text{CH}_2\text{m-CH-COOH}\), \(m\) being 1 or 2 and \(R_4\) representing a hydrogen atom or the radical \(-\text{COR}_5\), \(R_5\) being a saturated or unsaturated aliphatic radical having from 1 to 8 carbon atoms,

v) \(-\text{CH}_2\text{COR}_6\), \(R_6\) representing a radical \(-\text{OH}\) or \(-\text{N}^+\text{N}^-\), \(r'\) and \(r''\), which are identical or different, representing a hydrogen atom or an alkyl radical having from 1 to 5 carbon atoms, or \(r'\) and \(r''\) together forming a divalent radical of the formula: \(-\text{CH}_2\text{CH}-\text{O}(\text{CH}_2\text{CH})\text{m-}\),

vi) \(-\text{CH}_2\text{CH} = \text{CH}_2\), in which case \(R_2\) can only represent a hydrogen atom if \(R_3\) represents a hydrogen atom, and

vii) \(-\text{CH}_2\text{O-COR}_7\), \(R_7\) representing either the
radical -NH₂ or the radical -COOH, in which latter case R₂ and R₃ are not hydrogen atoms.

22. Compound according to Claim 21 which is in the form of a salt with an inorganic or organic acid.

23. Compound according to Claim 22 in which the acid is hydrochloric acid, hydrobromic acid, tartaric acid, malic acid, nicotinic acid, salicylic acid, N-oxo-nicotinic acid, palmitic acid, ascorbic acid, para-chlorophenoxyisobutyric acid, retinoic acid, α-hydroxy-isobutyric acid, α- or β-hydroxybutyric acid, 5-amino-3-thiahexanedioic acid, pyruvic acid, glycolic acid, citric acid, aspartic acid, glutamic acid, oxoglutaric acid, camphosulphonic acid, thiodiglycolic acid or a uronic acid.

24. Compound according to Claim 21 specifically identified herein.

25. Process for the preparation of a compound as claimed in any one of Claims 21 to 24, which comprises reacting, in a polar solvent medium, an oxirane of the formula:

\[
\begin{align*}
\text{CH}_2-\text{CH-R}_3 \\
\frac{2}{0}
\end{align*}
\]

in which R₃ represents either a hydrogen atom or a radical which is: -CH₃ or -CH₂OH, with a compound of the formula:

\[
\begin{align*}
\text{R}_1-\text{S-CH}_2-\text{CH}_2-\text{NH-R}_2 \\
\hfill (0)_n
\end{align*}
\]
in which: $R_1$, $R_2$ and $n$ are as defined in Claim 21.

26. Process according to Claim 25 which is carried out at a temperature of 0°C to the boiling point of the solvent.

27. Process for the preparation of a compound as claimed in any one of Claims 21 to 24 which comprises reacting a hydroxyalkyl halide of the formula:

$$X-\text{CH}_2\text{-CH-R}_3$$

$$\text{OH}$$

in which: $X$ represents a chlorine or bromine atom and $R_3$ represents either a hydrogen atom or a radical which is $-\text{CH}_3$ or $-\text{CH}_2\text{OH}$, with a compound of the formula:

$$R_1\text{-S-CH}_2\text{-CH-NH-R}_2$$

$$\text{(O)}_n$$

in which: $R_1$, $R_2$ and $n$ are as defined in claim 21.

28. Process for the preparation of a compound as claimed in any one of Claims 21 to 24 in which $R_2 = H$ and $n = 0$, which comprises reacting, in a polar solvent medium, a thiol of the formula $R_1\text{SH}$, in which $R_1$ is as defined in Claim 21, with a N-hydroxyalkyl-aziridine of the formula:
in which: \( R_3 \) represents either a hydrogen atom or a radical which is \(-\text{CH}_3\) or \(-\text{CH}_2\text{OH}\).

29. Process according to any one of claims 25 to 28 substantially as described in any one of Examples 1 to 59.

30. Compound as claimed in claim 21 whenever prepared by a process as claimed in any one of claims 25 to 29.

31. Composition according to claim 1 in which the compound is one claimed in any one of claims 21 to 24 and 30.

32. A method of altering the appearance of the hair or skin which comprises applying thereto a composition as claimed in any one of claims 1 to 20 and 31.