USE OF FATS TO REPLACE SILICONE IN THE PRODUCTION OF COSMETIC AND/OR PHARMACEUTICAL PREPARATIONS

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A cosmetic or pharmaceutical composition free of silicone wherein the composition contains a fatty compound comprising an oil selected from the group consisting of
(a) dialkyl ethers,
(b) dialkyl cyclohexanes,
(c) Guerbet alcohols,
(d) polyol polyhydroxystearates, and
(e) hydroxycarboxylic acid esters.
USE OF FATS TO REPLACE SILICONE IN THE PRODUCTION OF COSMETIC AND/OR PHARMACEUTICAL PREPARATIONS

FIELD OF THE INVENTION

[0001] This invention relates to the use of selected fatty compounds as a substitute for silicones in the production of cosmetic and/or pharmaceutical preparations.

[0002] 1. Prior Art

[0003] Silicones are used in skin and hair cosmetics as additives for influencing feel and luster. Unfortunately, the so-called build-up effect of silicones is a disadvantage. By this is meant that, when silicone-containing products are repeatedly applied to the skin or to the hair, a layer of polymers builds up and is difficult to remove simply by washing. In the case of hair in particular, this layer of polymers is undesirable and can interfere with other treatments, for example waving or dyeing. An overview of the use of silicones in cosmetics was published, for example, by K. Schnurrbusch in Seifen- Fettep-Ole-Wachse 100, 173, (1974).

[0004] Accordingly, the problem addressed by the present invention was to provide silicone substitutes which would not build up in use, but which would still show at least comparable performance properties in regard to feel and luster.

[0005] 2. Description of the Invention

[0006] The present invention relates to the use of fatty compounds as a silicone substitute in the production of cosmetic and/or pharmaceutical preparations which is distinguished by the fact that oils selected from the group consisting of

[0007] (a) dialkyl ethers,
[0008] (b) dialkyl cyclohexanes,
[0009] (c) Guerbet alcohols,
[0100] (d) Guerbet carbonates,
[0110] (e) ester oils,
[0112] (f) polyol polyhydroxystearates and/or
[0113] (g) hydroxycarboxylic acid esters

[0014] are used.

[0015] It has surprisingly been found that the sensorial evaluation of the selected oils in regard to feel and luster is at least as good as that of silicones without any unwanted build-up effect on skin and hair.

[0016] Dialkyl ethers

[0017] Dialkyl ethers which form component (a) correspond to formula (I):

\[ R^1-O-R^2 \]  

[0018] in which \( R^1 \) and \( R^2 \) independently of one another represent a linear or branched alkyl and/or alkyl radical containing 6 to 22, preferably 8 to 18 and more preferably 12 to 18 carbon atoms. The ethers may have an asymmetrical structure, although preferably have a symmetrical structure. Typical examples are di-n-octyl ether, di-i-octyl ether and di-n-stearyl ether.

[0019] Dialkyl cyclohexanes

[0020] Dialkyl cyclohexanes which form component (b) correspond to formula (II):

\[ R^2-\text{C}-R^4 \]  

[0021] in which \( R^3 \) and \( R^4 \) independently of one another represent a linear or branched alkyl and/or alkyl group containing 6 to 22, preferably 8 to 18 and more preferably 12 to 18 carbon atoms and \( C \) is a cyclohexyl group. Typical examples are di-n-octyl cyclohexane, di-i-octyl cyclohexane and di-n-stearyl cyclohexane.

[0022] Guerbet alcohols

[0023] Guerbet alcohols which form component (c) are preferably obtained by base-catalyzed self-condensation of linear and/or branched alcohols containing 6 to 22 and preferably 8 to 18 carbon atoms. An overview of Guerbet alcohols was published by A. J. O’Lennick in Soap Cosm. Chem. Spec. (April) 52 (1987). Typical examples are condensation products of technical fatty alcohol cuts containing 8 to 10 or 16 to 18 carbon atoms.

[0024] Guerbet carbonates

[0025] Guerbet carbonates which form component (d) are normally obtained by complete or partial transesterification of dialkyl carbonates with linear and/or branched alcohols containing 6 to 22, preferably 8 to 18 and preferably 12 to 18 carbon atoms [cf. DE-A1 40 40 154 (Henkel)]. Typical examples are carbonates which are obtained by transesterification of dimethyl carbonate or diethyl carbonate with fatty alcohols containing 8 to 10 or 12 to 18 carbon atoms, preferably octanol or cetyl alcohol.

[0026] Ester oils

[0027] Ester oils which form component (e) are long-chain esters liquid at room temperature which correspond to formula (III):

\[ R^6\text{CO}-\text{OR}^8 \]  

[0028] where \( R^6 \) is an aliphatic acyl group containing 6 to 22 carbon atoms and \( R^6 \) is an alkyl and/or alkyl group containing 12 to 22 carbon atoms. Typical examples are esters of capric acid, caprylic acid, 2-ethylhexanoic acid, capric acid, lauric acid, isostearic acid, myristic acid, palmitic acid, palmitoleic acid, stearic acid, isostearic acid, oleic acid, cladic acid, petroselic acid, linoleic acid, linolenic acid, elaeostearic acid, arachic acid, gadoleic acid, behenic acid and erucic acid and technical mixtures thereof with lauryl alcohol, isostearic alcohol, myristyl alcohol, cetyl alcohol, palmitoleyl alcohol, stearyl alcohol, isostearyl alcohol, oleyl alcohol, claidyl alcohol, petroselinyl alcohol, linolyl alcohol, linolenyl alcohol, elaostearyl alcohol, arachyl alcohol, gadoleyl alcohol, behenyl alcohol, erucyl alcohol and brassydyl alcohol and technical mixtures thereof.

Ester oils which contain at least 24 and preferably at least 30 carbon atoms and one double bond in the fatty acid and fatty alcohol component together are preferred. Typical examples are oleyl erucate, erucyl oleate, behenyl oleate and cetearyl oleate.

[0029] Polyol polyhydroxystearates

[0030] The polyol component of the polyol polyhydroxystearates which form component (f) may be derived from
Substances which contain at least 2, preferably 3 to 12 and more preferably 3 to 8 hydroxyl groups and 2 to 12 carbon atoms. Typical examples are:

- glycerol and polyglycerol;
- alkylene glycols, such as ethylene glycol, diethylene glycol, propylene glycol;
- methylol compounds, such as trimethylol propane, trimethylol butane, pentaerythritol and dipentaerythritol;
- alkyl oligoglycosides containing 1 to 22, preferably 1 to 8 and more preferably 1 to 4 carbon atoms in the alkyl group, such as for example methyl and butyl glucoside;
- sugar alcohols containing 5 to 12 carbon atoms, such as sorbitol or mannitol;
- sugars containing 5 to 12 carbon atoms, such as glucose or sucrose;
- amino sugars, such as glucamine.

Among the substances which form component (f), reaction products based on polyglycerol are particularly important by virtue of their excellent performance properties. It has proved to be of particular advantage to use alkylene polyglycerols with the following homolog distribution (the preferred ranges are shown in brackets):

- glycerol: 5 to 35 (15 to 30)% by weight
- diglycerols: 15 to 40 (20 to 32)% by weight
- triglycerols: 10 to 35 (15 to 25)% by weight
- tetraglycerols: 5 to 20 (8 to 15)% by weight
- pentaglycerols: 2 to 10 (3 to 8)% by weight
- oligoglycerols: to 100% by weight

Hydrocarboxylic acid esters

The last component (g) is selected from esters of hydroxyarboxylic acids containing 3 to 18 and preferably 3 to 12 carbon atoms with aliphatic alcohols containing 1 to 22, preferably 6 to 18 and more preferably 12 to 18 carbon atoms. Typical examples are esters of lactic acid, malic acid, tartaric acid, citric acid, ricienolic acid and/or 1,2-hydroxyxy- tric acid with methanol, ethanol, propanol, caprylic alcohol, caprylic alcohol, 2-ethylhexyl alcohol, capric alcohol, lauryl alcohol, isostearyl alcohol, myristyl alcohol, cetyl alcohol, palmi-
toleyl alcohol, stearyl alcohol, isostearyl alcohol, oleyl alcohol, cladryl alcohol, petroselinyl alcohol, linyl alcohol, linolenyl alcohol, acetylcarbaryl alcohol, arachyl alcohol, gadoleyl alcohol, behenyl alcohol, erucyl alcohol and brassidyl alcohol and technical mixtures thereof. It is preferred to use long-chain hydroxyarboxylic acids, such as ricinoleic acid and hydroxyystearic acid, with short-chain alcohols, for example methanol or ethanol, or short-chain hydroxyarboxylic acids, such as lactic acid or citric acid, with long-chain fatty alcohols, such as coco fatty alcohol or cetaryl alcohol.

Surfactants

In one preferred embodiment of the invention, the sensorial properties of the fatty compounds can be further improved by mixing with nonionic surfactants, preferably of the alkyl and/or alkenyl oligoglycoside and/or fatty acid-N-alkyl glucamide type. In this embodiment, the fatty compounds and the nonionic surfactants may be used in a ratio by weight of 10:90 to 90:10, preferably in a ratio by weight of 25:75 to 75:25 and more preferably in a ratio by weight of 40:60 to 60:40.

Alkyl and/or alkenyl oligoglycosides

Alkyl and alkenyl oligoglycosides are known nonionic surfactants which correspond to formula (IV):

\[ R^{0\prime}OC_{n}\backslash \]  

where \( R^7 \) is an alkyl and/or alkenyl radical containing 4 to 22 carbon atoms, G is a sugar unit containing 5 or 6 carbon atoms and p is a number of 1 to 10. They may be obtained by the relevant methods of preparative organic chemistry. EP-A1-0 301 298 and WO 90/03977 are cited as representative of the extensive literature available on this subject.

The alkyl and/or alkenyl oligoglycosides may be derived from aldooses or ketoses containing 5 or 6 carbon atoms, preferably glucose. Accordingly, the preferred alkyl and/or alkenyl oligoglycosides are alkyl and/or alkenyl oligoglycosides.

The index p in general formula (IV) indicates the degree of oligomerization (DP), i.e. the distribution of mono- and oligoglycosides, and is a number of 1 to 10. Whereas p in a given compound must always be an integer and, above all, may assume a value of 1 to 6, the value p for a certain alkyl oligoglycoside is an analytically determined calculated quantity which is generally a broken number. Alkyl and/or alkenyl oligoglycosides having an average degree of oligomerization p of 1.1 to 3.0 are preferably used. Alkyl and/or alkenyl oligoglycosides having a degree of oligomerization of less than 1.7 and, more particularly, between 1.2 and 1.4 are preferred from the applicational point of view.

The alkyl or alkenyl radical \( R^7 \) may be derived from primary alcohols containing 4 to 11 and preferably 8 to 10 carbon atoms. Typical examples are butanol, caproic alcohol, caprylic alcohol, capric alcohol and undecyl alcohol and the technical mixtures thereof obtained, for example, in the hydrogenation of technical fatty acid methyl esters or in the hydrogenation of aldehydes from Roelen's o xo synthesis. Alkyl oligoglycosides having a chain length of C_{4} to C_{10} (DP= 1 to 3), which are obtained as first runnings in the separation of technical C_{12-18} coconut oil fatty alcohol by distillation and which may contain less than 6% by weight of C_{12} alcohol as an impurity, and also alkyl oligoglycosides based on technical C_{12-14} o xo alcohols (DP= 1 to 3) are preferred. In addition, the alkyl or alkenyl radical \( R^7 \) may also be derived from primary alcohols containing 12 to 22 and preferably 12 to 14 carbon atoms. Typical examples are lauryl alcohol, myristyl alcohol, cetyl alcohol, palmi-
toleyl alcohol, stearyl alcohol, isostearyl alcohol, oleyl alcohol, cladryl alcohol, petroselinyl alcohol, linyl alcohol, linolenyl alcohol, acetylcarbaryl alcohol, arachyl alcohol, gadoleyl alcohol, behenyl alcohol, erucyl alcohol and brassidyl alcohol and technical mixtures thereof which may be obtained as described above. Alkyl oligoglycosides based on hydrogenated C_{12-14} coconut oil fatty alcohol having a DP of 1 to 3 are preferred.
Fatty acid N-alkyl polyhydroxyalkylamides

are nonionic surfactants which correspond to formula (V):

\[ \text{RCO} \text{N}-\text{CH-CH-CH-OH-CH-OH OH} \]

Preferred fatty acid N-alkyl polyhydroxyalkylamides are glucamides corresponding to formula (VI) in which R is hydrogen or an alkyl group and R\text{'CO} represents the acyl component of caproic acid, caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, palmitoleic acid, stearic acid, isostearic acid, oleic acid, elaidic acid, petroselic acid, linoleic acid, linolenic acid, arachid acid, gadoleic acid, behenic acid or erucic acid or technical mixtures thereof. Fatty acid N-alkyl glucamides (VI) obtained by reductive amination of glucose with methylamine and subsequent acylation with lauric acid or C\text{12:14} coconut oil fatty acid or a corresponding derivative are particularly preferred. In addition, the polyhydroxyalkylamides may also be derived from maltose and palatinose.

Commercial Applications

The silicone substitutes are suitable for the production of cosmetic and/or pharmaceutical preparations, preferably skin and hair treatment preparations, for example hair shampoos, hair lotions, foam baths, cremes, lotions or emollients. They may also contain emulsifiers, superfatting agents, stabilizers, waxes, consistency regulators, thickeners, cationic polymers, silicone compounds, biogenic agents, antiandrogen agents, film formers, preservatives, hydrotropes, solubilizers, UV filters, dyes and perfumes as further auxiliaries and additives.

Suitable emulsifiers are, for example, nonionic surfactants from at least one of the following groups:

- Adducts of 2 to 30 moles of ethylene oxide and/or 0 to 5 moles of propylene oxide with linear fatty alcohols containing 8 to 22 carbon atoms, with fatty acids containing 12 to 22 carbon atoms and with alkylphenols containing 8 to 15 carbon atoms in the alkyl group;
- C\text{12:18} fatty acid monoesters and diesters of adducts of 1 to 30 moles of ethylene oxide with glycerol;
- Glycerol monoesters and diesters and sorbitan monoesters and diesters of saturated and unsaturated fatty acids containing 6 to 22 carbon atoms and ethylene oxide adducts thereof;
- Adducts of 15 to 60 moles of ethylene oxide with castor oil and/or hydrogenated castor oil;
- Partial esters based on linear, branched, saturated or unsaturated C\text{12-22} fatty acids, ricinoleic acid and 12-hydroxy stearic acid and glycerol, polyglycerol, pentaerythritol, dipentaerythritol, sugar alcohols (for example sorbitol) and polyglycosides (for example cellulose);
- Trialkyl phosphates;
- Wool wax alcohols;
- Polysiloxane/polyalkyl polyether copolymers and corresponding derivatives;
- Mixed esters of pentaerythritol, fatty acids, citric acid and fatty alcohol according to DE-PS 11 65 574 and
d- Polyalkylene glycols.

The addition products of ethylene oxide and/or propylene oxide with fatty alcohols, fatty acids, alkylphenols, glycerol monoesters and diesters and sorbitan monoesters and diesters of fatty acids or with castor oil are known commercially available products. They are homologous mixtures of which the average degree of alkoxilation corresponds to the ratio between the quantities of ethylene oxide and/or propylene oxide and substrate with which the addition reaction is carried out. C\text{12:18} fatty acid monoesters and diesters of adducts of ethylene oxide with glycerol are known as refattening agents for cosmetic formulations from DE-PS 20 24 051.

In addition, zwitterionic surfactants may be used as emulsifiers. Zwitterionic surfactants are surface-active compounds which contain at least one quaternary ammonium group and at least one carboxylic and one sulfonate group in the molecule. Particularly suitable zwitterionic surfactants are the so-called betaines, such as the N-alkyl-N,N-dimethyl ammonium glycinate, for example cocoalkyl dimethyl ammonium glycinate, N-acylamino propyl-N,N-dimethyl ammonium glycinate, for example coco-acylamino propyl dimethyl ammonium glycinate, and 2-alkyl-3-carboxym-
ethyl-3-hydroxyethyl imidazolines containing 8 to 18 carbon atoms in the alkyl or acyl group and cocoylamonioet- 
hyethyl hydroxyethyl carboxyethyl glycinate. The fatty acid 
amide derivative known under the CTFA name of Coco- 
amidopropyl Betaine is particularly preferred. Ampholytic surfactants are also suitable emulsifiers. Ampholytic surfac- 
tants are surface-active compounds which, in addition to a 
C_{12-18} alkyl or acyl group, contain at least one free amino 
group and at least one —COOH— or —SO_{2}H— group in 
the molecule and which are capable of forming inner salts. 
Examples of suitable ampholytic surfactants are N-alkyl 
glycines, N-alkyl propionic acids, N-alkylaminobutyric 
acids, N-alkylaminopropionic acids, N-hydroxyethyl-N- 
alkylamidopropyl glycines, N-alkyl taurines, N-alkyl sur- 
cosines, 2-alkylaminopropionic acids and alkylaminocarboxylic 
acids containing around 8 to 18 carbon atoms in the alkyl 
group. Particularly preferred ampholytic surfactants are 
N-cocoylamino propionate, cocoylaminoethoxypropane- 
propionate and C_{12-18} alkyl sarcosine. Besides ampholytic 
emulsifiers, quaternary emulsifiers may also be used, those 
of the esterquat type, especially methyl-quaternized difatty 
acid triethanolamine ester salts, being particularly preferred.

[0074] The superfatting agents used may be such subs- 
stances as, for example, lanolin and lecithin and polyethoxy- 
lated or acylated lanolin and lecithin derivatives, polyol fatty 
adic esters, mono- and diacylglycerides and fatty acid alkanolamides, the latter also serving as foam stabilizers. Suitable consist- 
cency regulators are, above all, fatty alcohols containing 12 
to 22 and preferably 16 to 18 carbon atoms and, in addition, 
glycerides. These substances are preferably used in 
combination with alkyl oligogluco sides and/or fatty acid-N- 
methyl glucamides of the same chain length and/or polygly- 
lecrol poly-12-hydroxy stearates. Suitable thickeners are, 
for example, poly saccharides, more particularly xanthan 
gum, guar gum, agar agar, alginates and tyloses, carboxym- 
ethyl cellulose and hydroxyethyl cellulose, relatively high 
molecular weight polyethylene glycol monoster and 
diester fatty acids, polyglycerol esters (for example, Gal- 
opols®[Goodrich] or Synthamels®[Sigma]), polyacryla- 
mides, polivinyl alcohol and polivinyl pyrolidone surfac- 
tants such as, for example, ethoxylated fatty acid glyc erides, 
esters of fatty acids with polyols such as, for example, 
pentaerythritol or trimethylene glycol, narrow-range fatty 
alcohol ethers or alkyl oligogluco sides and electrolytes 
such as sodium chloride and ammonium chloride.

[0075] Suitable cationic polymers are, for example, cat- 
ionic cellulose derivatives such as, for example, the quater- 
nized hydroxyethyl cellulose available under the name of 
Polymer JR 400® from Amerchol, cationic starch, copolym- 
ers of diallyl ammonium salts and acrylamides, quater- 
nized vinyl pyrolidone/vinyl imidazole polymers such as, 
for example, Luviquat®[BASF], condensation products of 
polyglycols and amines, quaternized collagen polyglycides 
such as, for example, Lauryldimonium Hydroxypropyl 
Hydrolyzed Collagen (Lamequat®L Grunau), quaternized 
wheat polyglycols, polyethyleneimine, cationic silicate 
polymers such as, for example, Amidomethicone, copoly- 
mers of adipic acid and dimethyl amino hydroxypropyl 
diethylcetramine (Cartaretin®, Sandoz), copolymers of 
fatty acid with dimethyl diallyl ammonium chloride (Mer- 
quat® 550, Chemviron), polyacrylamides, as 
described, for example, in FR-A 225840 and crosslinked 
water-soluble polymers thereof, cationic chitin derivatives 
such as, for example, quaternized chitosan, optionally in 
microcrystalline distribution, condensation products of diha- 
loalkyls as such, for example, dibromobutane with bis- 
dialkylamines such as, for example, bis-dimethylamino-1, 
3-propane, cationic guar gum such as, for example, Jaguar® 
CBS, Jaguar® C-17, Jaguar® C-16 of Celanese, quaternized 
ammonium salt polymers such as, for example, Mirapol® 
A-15, Mirapol® AD-1, Mirapol® AZ-1 of Miranol.

[0076] Suitable silicone compounds are, for example, 
dimethyl polysiloxanes, methyl polydimethylsiloxanes, cyclic 
silicones and amino- fatty acid-, alcohol-, polyether-, 
epoxy-, fluorine- and/or alkyl-modified silicone compounds 
which may be both liquid and resin-like at room tempera- 
ture. Typical examples of fats are glycerides while suitable 
waxes are inter alia beeswax, carnauba wax, candelilla wax, 
montan wax, paraffin wax or micro waxes, optionally in 
combination with hydrophilic waxes, for example ceto- 
stearic alcohol, or partial glycerides. The pearlescent waxes 
used may be, in particular, mono- and diacylglycerides 
containing polyglycol ethers, partial glycerides or esters of 
fatty alcohols with polylactic carboxylic acids or hydroxyca- 
boxylic acids. Suitable stabilizers are metal salts of fatty 
acids such as, for example, magnesium, aluminium and/or 
zinc stearate. Biogenic agents in the context of the invention 
are, for example, tocopherol, tocopherol acetate, tocopherol 
palmitate, ascorbic acid, retinol, bisabolol, allantoin, 
phytantriol, panthenol, AHA acids, plant extracts and vita- 
min complexes. Suitable antifungal agents are imidazol, 
octopirox and zinc pyrithion. Typical film formers are, for 
example, chitosan, microcrystalline chitosan, quaternized 
chitosan, polivinyl pyrolidone, vinyl pyrolidone/vinyl 
acetate copolymers, polymers of the acrylate acid series, 
quaternary cellulose derivatives, collagen, hyaluronic acid 
and salts thereof and similar compounds. In addition, hydro- 
tropes such as, for example, ethanol, isopropyl alcohol or 
polys may be used to improve flow behavior. Suitable 
preservatives are, for example, phenoxyethanol, formalde- 
hyde solution, parabens, penae sudol or sorbic acid. Suitable 
dyes are any of the substances suitable and approved for 
cosmetic purposes as listed, for example, but dulled by 
"Kosmetische Färbermittel" of the Farbstoffkommission der 
Deutschen Forschungsgemeinschaft, Verlag Chemie, Wein- 
heim, 1984, pages 81 to 106. These dyes are normally used 
in concentrations of 0.001 to 0.1% by weight, based on the 
mixture as a whole.

[0077] The total percentage content of auxiliaries and 
additives may be from 1 to 50% by weight and is preferably 
from 5 to 40% by weight, based on the particular formula- 
tion. The formulations may be prepared by standard cold or 
hot processes and are preferably produced by the phase 
inversion temperature method.

EXAMPLES

[0078] Various hair shampoos containing the silicone sub- 
stitutes according to the invention (formulations F1 to F7) or 
silicone (comparison formulation F8) were evaluated for 
feel and luster on a scale of 1 (pleasant soft feel, brilliant 
luster) to 5 (hard, dull) by a panel of 20 volunteers in the 
owned "half-head test. For qualitatively determining the build-up of the oils on the hair, hair tresses were alternately 
treated with the test formulations and dried 10 times and 
then reduced to ashes. A heavy buildup of oils is indicated 
by the symbol (+) in the Table whereas the symbol (−) 
indicates the absence or substantial absence of oils. The 
results represent mean values.
TABLE 1

Hair shampoo feel and luster (quantities in % by weight):

<table>
<thead>
<tr>
<th>Components</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>F6</th>
<th>F7</th>
<th>F8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium Laureth</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Sulfate</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>Cocamidopropyl</td>
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<td>Betaine</td>
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<tr>
<td>PEG Distearete</td>
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<tr>
<td>Dicapryl ether</td>
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<tr>
<td>Dicapryl</td>
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<td>cyclohexane</td>
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<td>Oxysteoxydemol</td>
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<td>Oxysteoxydeqel</td>
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<tr>
<td>carbonate</td>
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<td>Olejy eructe</td>
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<td>PEG hydroxyesterate</td>
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<td>Olejy lacterate</td>
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<tr>
<td>Dimethylolne</td>
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<tr>
<td>NaCl</td>
<td>0.5</td>
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<tr>
<td>Water</td>
<td>to 100</td>
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<tr>
<td>Evaluation (half-head test)</td>
<td>- Feel</td>
<td>2</td>
<td>2.5</td>
<td>2.5</td>
<td>1.5</td>
<td>2</td>
<td>1.5</td>
<td>2.5</td>
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<tr>
<td>- Luster</td>
<td>1</td>
<td>1</td>
<td>1.5</td>
<td>2.5</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>- Build-up</td>
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</tbody>
</table>

Hair aftertreatment formulations F9 to F15 and comparison product F16 were tested in the same way. The results are set out in Table 2.

TABLE 2

Hair aftertreatment formulations: feel and luster (quantities in % by weight):

<table>
<thead>
<tr>
<th>Components</th>
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The panel tests show that the use of the fatty compounds according to the invention leads to formulations which, when applied to the hair, are judged to be better than the comparison formulations containing silicones and which, at the same time, have the advantage of no build-up effect.

1. The use of fatty compounds as a silicone substitute in the production of cosmetic and/or pharmaceutical preparations, characterized in that oils selected from the group consisting of

(a) dialky ethers,
(b) dialky cyclohexanes,
(c) Guerbet alcohols,
(d) polyol polyhydroxystearates and/or
(e) hydroxy carboxylic acid esters are used.

2. The use claimed in claim 1, characterized in that dialky ethers corresponding to formula (I):

\[
R^1-O-R^2
\]

3. The use claimed in claims 1 and 2, characterized in that dialky cyclohexanes corresponding to formula (II):

\[
R^3-O-[C]-R^4
\]

4. The use claimed in claims 1 to 3, characterized in that Guerbet alcohols obtained by self-condensation of linear and/or branched alcohols containing 6 to 22 carbon atoms are used.

5. The use claimed in claims 1 to 4, characterized in that polyglycerol polyhydroxy stearates are used.

6. The use claimed in claims 1 to 5, characterized in that esters of hydroxy carboxylic acids containing 3 to 18 carbon atoms with aliphatic alcohols containing 1 to 22 carbon atoms are used.

7. The use claimed in claims 1 to 6, characterized in that the fatty compounds are used together with nonionic surfactants of the alkyl and/or alkyl oligoglycoside and/or fatty acid N-alkyl glucamide type.

8. The use claimed in claims 1 to 7, characterized in that the fatty compounds and the nonionic surfactants are used in a ratio by weight of 10:90 to 90:10.