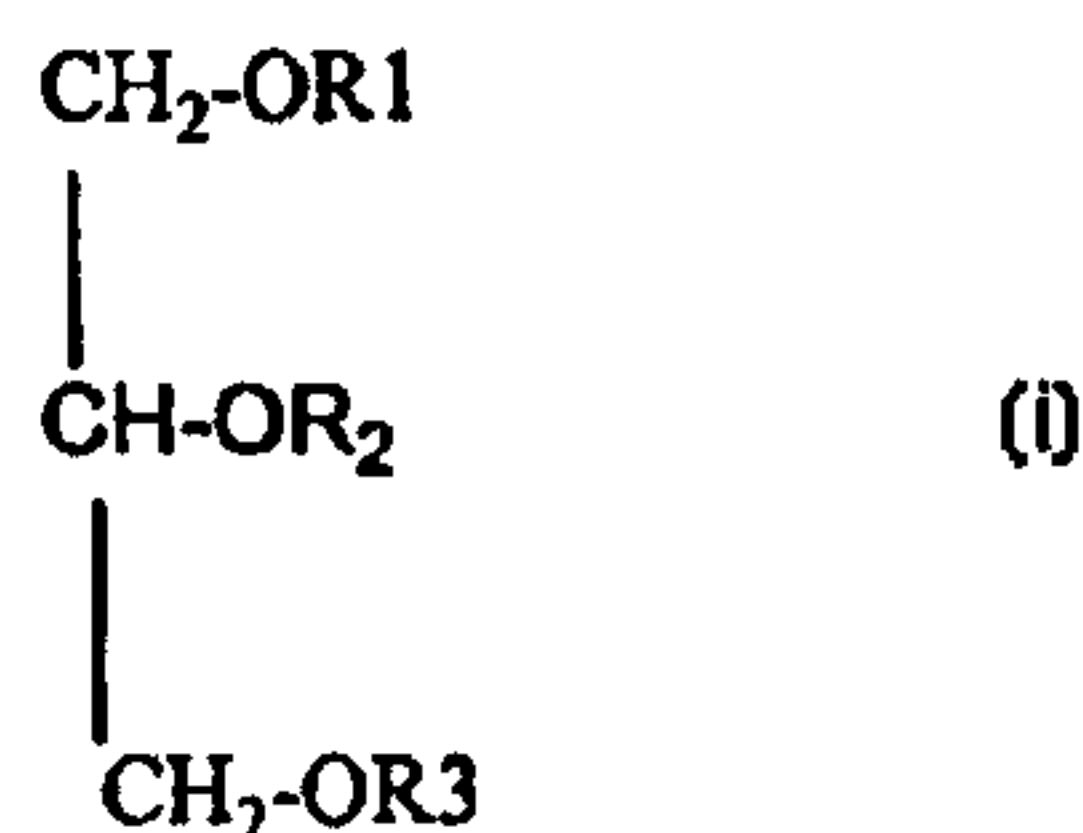
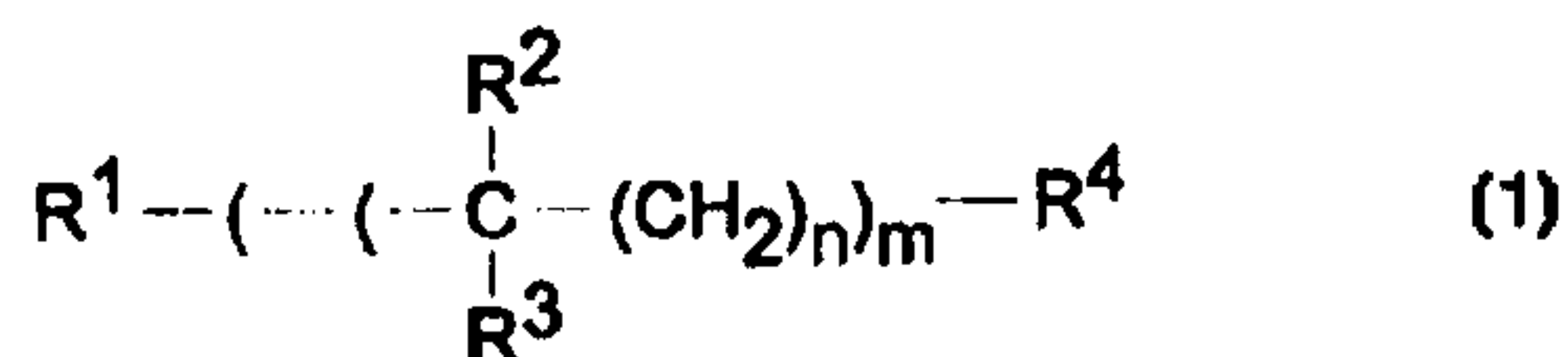




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(51) Int.Cl.⁶ A61K 7/50
(30) 1997/10/17 (9722013.1) GB
(54) **COMPOSITIONS NETTOYANTES**
(54) **CLEANSING COMPOSITIONS**



(57) La présente invention concerne une composition nettoyante liquide d'hygiène personnelle apte à être rincée comportant: (a) de l'eau; (b) environ 1 % à environ 60 % en poids d'un tensioactif soluble dans l'eau; (c) une huile insoluble dans l'eau choisie parmi les polyalphaoléfinés à forte ramification correspondant à la formule (1) où R¹ est H ou un alkyle en C₁-C₂₀, R⁴ est un alkyle en C₁-C₂₀, R² est H ou C₁-C₂₀, et R³ est C₁-C₂₀ de préférence de C₅-C₂₀; n est un nombre entier compris entre 0 et 3 et m est un nombre entier compris entre 1 et 1000 et ayant un poids moyen numérique moléculaire compris entre environ 1000 et environ 25000; et (d) un stabilisateur cristallin, contenant de l'hydroxy choisie parmi (i) où R₁ est -(C=O)-R₄(COH)_xR₅(COH)_yR₆; R₂ est R₁ ou H; R₃ est R₁ ou H; R₄ est un alkyle en C₀-C₂₀; R₅ est un alkyle en C₀-C₂₀; R₆ est un alkyle en C₀-C₂₀; R₄+R₅+R₆=C₁₀₋₂₂; et 1≤x+y≤4 (ii) R₇-(C=O)-OM, où R₇ est -R₄(COH)_xR₅(COH)_yR₆, M est Na⁺, K⁺, Mg²⁺, ou H et (iii) leurs mélanges. Lesdites compositions nettoyantes d'hygiène personnelle présentent d'excellentes propriétés de stabilité et de rhéologie de produit ainsi qu'un excellent toucher au rinçage et assure la douceur de la peau.

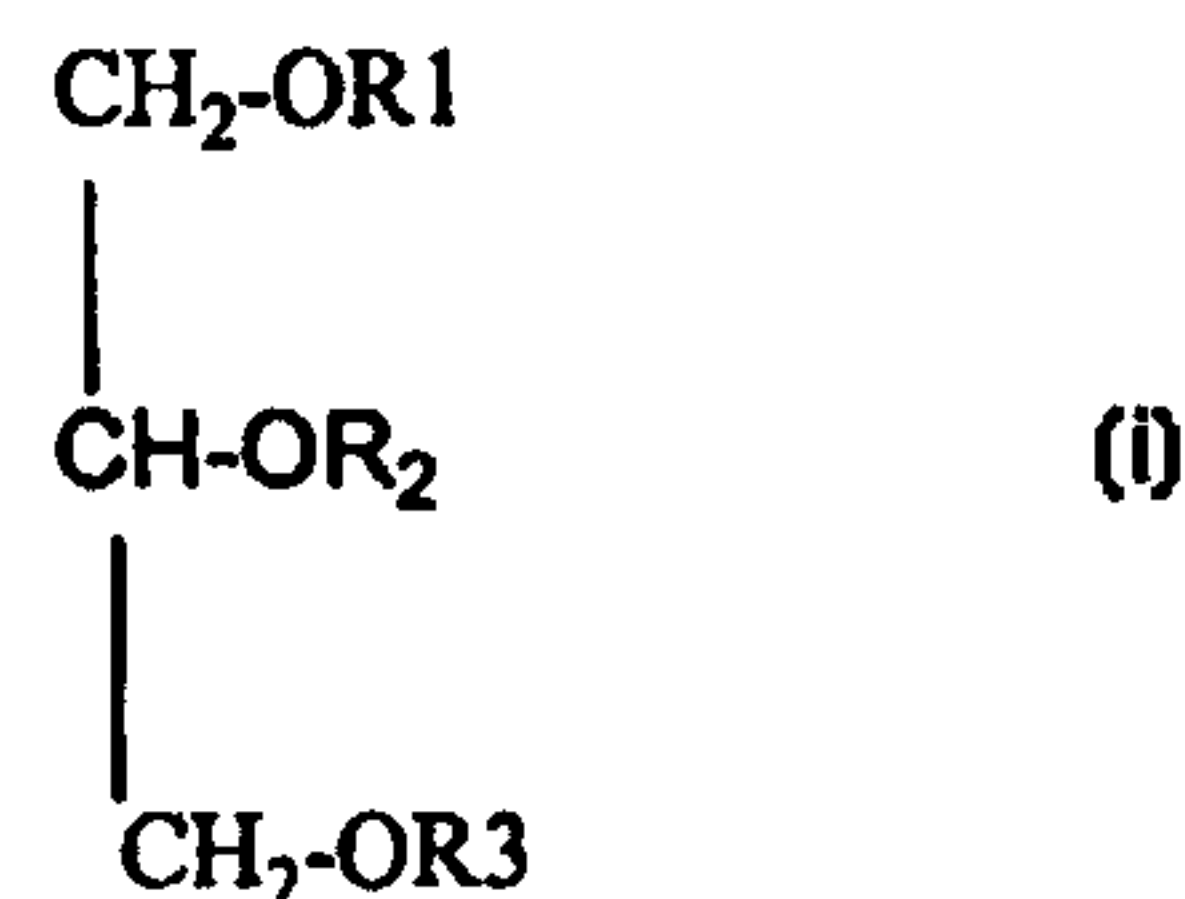
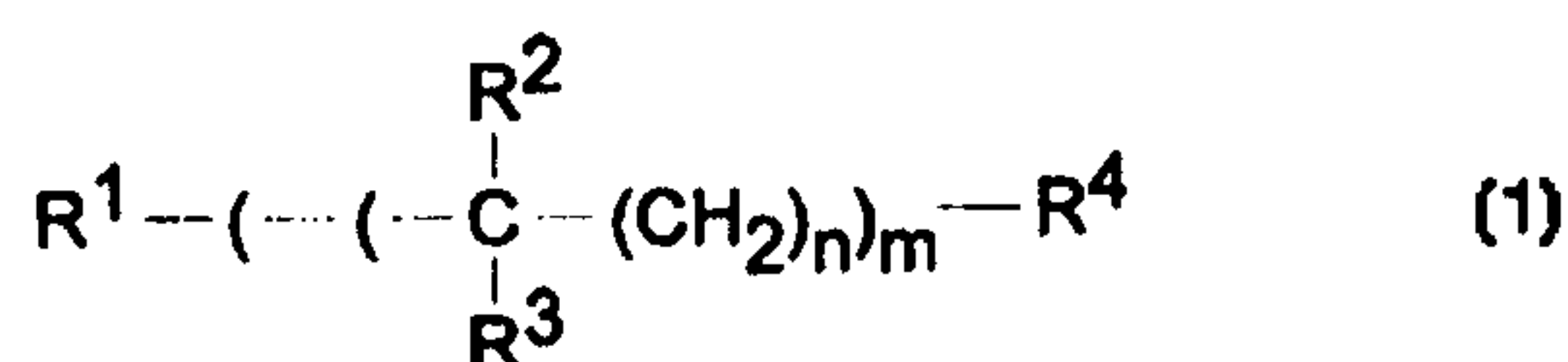
(57) A rinse-off liquid personal cleansing composition comprising: (a) water, (b) from about 1 % to about 60 % by weight of a water-soluble surfactant, (c) a water-insoluble oil selected from highly branched polyalphaolefins having formula (1) wherein R¹ is H or C₁-C₂₀ alkyl, R⁴ is C₁-C₂₀ alkyl, R² is H or C₁-C₂₀, and R³ is C₁-C₂₀ preferably from C₅-C₂₀, n is an integer from 0 to 3 and m is an integer of from 1 to 1.000 and having a number average molecular weight of from about 1.000 to about 25,000, and (d) a crystalline, hydroxy-containing stabilizer selected from (i) wherein R₁ is -(C=O)-R₄(COH)_xR₅(COH)_yR₆, R₂ is R₁ or H, R₃ is R₁ or H, R₄ is C₀-20 alkyl, R₅ is C₀-C₂₀ alkyl, R₆ is C₀-C₂₀ alkyl, R₄+R₅+R₆=C₁₀₋₂₂, and wherein 1≤x+y≤4, (ii) R₇-(C=O)-OM, wherein R₇ is -R₄(COH)_xR₅(COH)_yR₆, M is Na⁺, K⁺, or Mg²⁺, or H, and (iii) mixtures thereof. The personal cleansing compositions of the invention provide excellent product stability and rheology characteristics as well as excellent rinse feel and skin mildness.

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61K 7/50	A3	(11) International Publication Number: WO 99/20243 (43) International Publication Date: 29 April 1999 (29.04.99)
(21) International Application Number: PCT/US98/21138 (22) International Filing Date: 7 October 1998 (07.10.98) (30) Priority Data: 9722013.1 17 October 1997 (17.10.97) GB (71) Applicant (for all designated States except US): THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): DU REAU, Charles, Marie, Alain [GB/GB]; 73 Park Road, London W4 3EY (GB). GREEN, Matthew, Thomas [GB/GB]; 78 Broom Park, Teddington, Middx TW11 9RR (GB). (74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).		(81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 1 July 1999 (01.07.99)

(54) Title: CLEANSING COMPOSITIONS



(57) Abstract

A rinse-off liquid personal cleansing composition comprising: (a) water, (b) from about 1 % to about 60 % by weight of a water-soluble surfactant, (c) a water-insoluble oil selected from highly branched polyalphaolefins having formula (1) wherein R^1 is H or C_1-C_{20} alkyl, R^4 is C_1-C_{20} alkyl, R^2 is H or C_1-C_{20} , and R^3 is C_1-C_{20} preferably from C_5-C_{20} , n is an integer from 0 to 3 and m is an integer of from 1 to 1.000 and having a number average molecular weight of from about 1.000 to about 25,000, and (d) a crystalline, hydroxy-containing stabilizer selected from (i) wherein R_1 is $-(C=O)-R_4(COH)_xR_5(COH)_yR_6$, R_2 is R_1 or H, R_3 is R_1 or H, R_4 is C_0-20 alkyl, R_5 is C_0-C_{20} alkyl, R_6 is C_0-C_{20} alkyl, $R_4+R_5+R_6=C_{10-22}$, and wherein $1 \leq x+y \leq 4$, (ii) $R_7-(C=O)-OM$, wherein R_7 is $-R_4(COH)_xR_5(COH)_yR_6$, M is Na^+ , K^+ , or Mg^{2+} , or H, and (iii) mixtures thereof. The personal cleansing compositions of the invention provide excellent product stability and rheology characteristics as well as excellent rinse feel and skin mildness.

CLEANSING COMPOSITIONS TECHNICAL FIELD

The present invention relates to cleansing compositions. In particular it relates to mild personal cleansing compositions which display improved product stability and in combination with good rinse feel, good skin feel attributes, and foaming properties which are suitable for simultaneously cleansing and conditioning the skin and/or the hair and which may be used, for example, in the form of foam bath preparations, shower products, skin cleansers, hand, face and body cleansers, shampoos, etc.

Background Of The Invention

Mild cosmetic compositions must satisfy a number of criteria including cleansing power, foaming properties and mildness/low irritancy/good feel with respect to the skin, hair and the ocular mucosae. Skin is made up of several layers of cells which coat and protect the underlying tissue. The keratin and collagen fibrous proteins that form the skeleton of its structure. The outermost of these layers is referred to as the stratum corneum. Hair similarly has a protective outer coating enclosing the hair fibre which is called the cuticle. Anionic surfactants can penetrate the stratum corneum membrane and the cuticle and, by delipidization destroy membrane integrity and loss of barrier and water retention functions.

This interference with skin and hair protective membranes can lead to a rough skin feel and eye irritation and may eventually permit the surfactant to trigger immune response creating irritation.

Ideal cosmetic cleansers should cleanse the skin or hair gently, without defatting and/or drying the hair and skin and without irritating the ocular mucosae or leaving skin taut after frequent use. Most lathering soaps, shower and bath products, shampoos and bars fail in this respect.

Certain synthetic surfactants are known to be mild. However, a major drawback of some mild synthetic surfactant systems when formulated for shampooing or personal cleansing is that they have what can be described as a "slippy" or "non-draggy" rinse feel which is not liked by some

consumers. The use of certain surfactants such as potassium laurate, on the other hand, can yield a "draggy" rinse feel but at the expense of clinical skin mildness. These two facts make the selection of suitable surfactants in the rinse feel and mildness benefit formulation process a delicate balancing act.

Thus a need exists for personal cleansing compositions which deliver a "draggy" rinse feel while at the same time having excellent skin mildness, in addition to excellent product characteristics such as lather, and in-use skin feel attributes.

Personal cleansing compositions having a "draggy" rinse feel at the same time as having excellent mildness characteristics are provided by the combination of certain water-insoluble oils, such as certain polyalphaolefin oils, in combination with a mild, water-soluble surfactant system.

Although providing improvements in rinse feel, systems containing such oils are not always successful from the viewpoint of product stability, rheology and product dispensability. While not wishing to be limited by theory this is believed to be due to the low density characteristics of such oils. Therefore it would be desirable to improve the stability and rheology characteristics of such systems.

Conventional personal cleansing compositions use materials such as Bentone gels and ethylene glycol distearate. Crystalline hydroxyl-containing stabilizer materials such as trihydroxystearin are known for use in liquid skin cleansers. WO 96/25144 discloses stress stable lathering skin cleansing compositions comprising a crystalline, hydroxy-containing stabilizer, lipid skin moisturising agent, surfactant and water. GB-A-2297975 discloses personal cleansing compositions comprising surfactant, water-insoluble salt of a C14-C22 fatty acid, optionally a cationic or nonionic polymeric skin conditioning agent, trihydroxystearin and water.

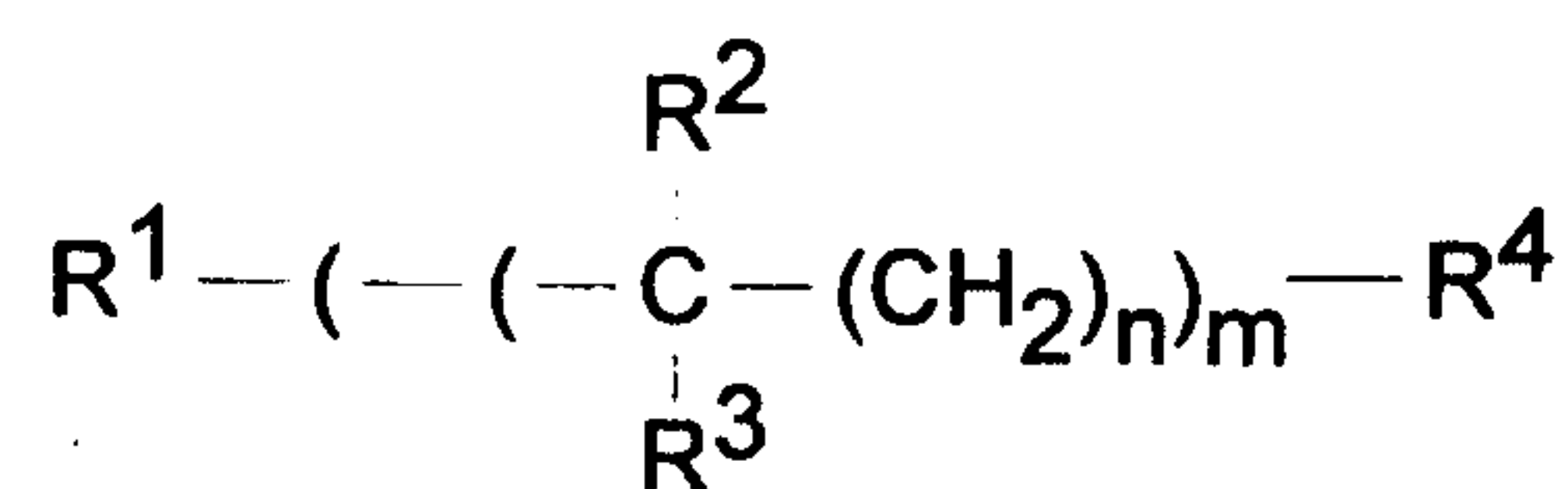
It has now been surprisingly found that by incorporating crystalline, hydroxy-containing materials such as trihydroxystearin into personal cleansing compositions containing mild, water-soluble surfactant systems

and certain low density polyolefin oils, significant improvements in product stability, rheology and thickening characteristics are provided, at the same time as providing excellent rinse feel.

Summary Of The Invention

According to the present invention there is provided a rinse-off liquid personal cleansing composition comprising:

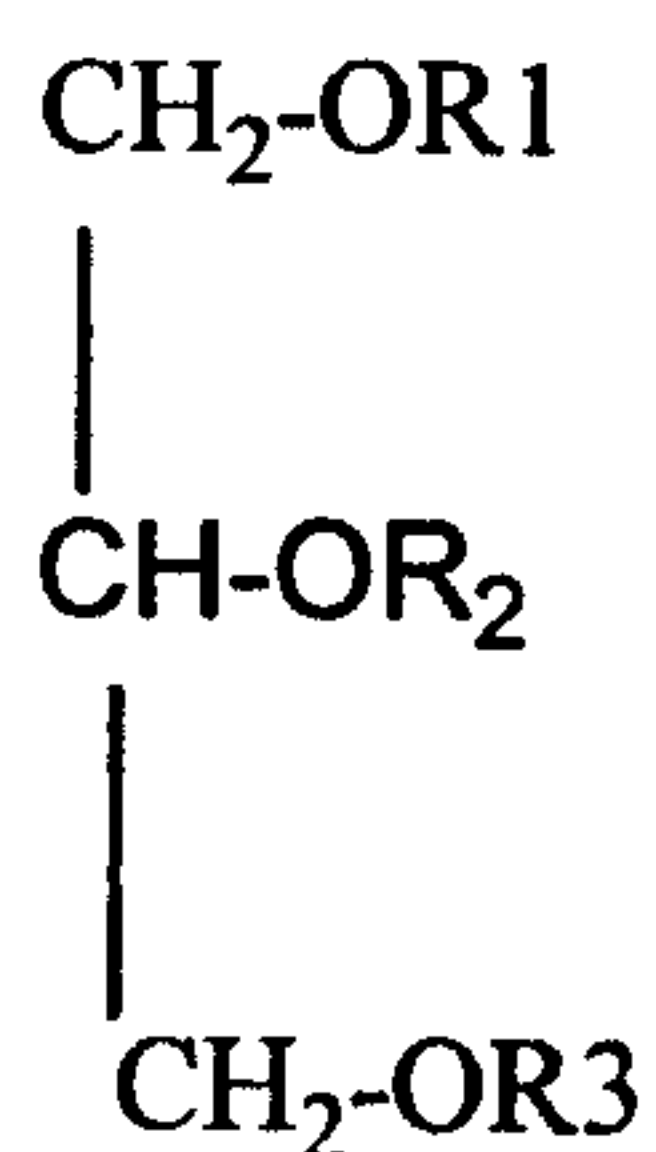
- (a) water,
- (b) from about 1% to about 60% by weight of a water-soluble surfactant,
- (c) a water-insoluble oil selected from highly branched polyalphaolefins having the following formula:



wherein R^1 is H or C_1 - C_{20} alkyl, R^4 is C_1 - C_{20} alkyl, R^2 is H or C_1 - C_{20} , and R^3 is C_1 - C_{20} preferably from C_5 - C_{20} , n is an integer from 0 to 3 and m is an integer of from 1 to 1000 and having a number average molecular weight of from about 1000 to about 25,000, and

- (d) a crystalline, hydroxy-containing stabilizer selected from

(i)



wherein

R1 is $-(C=O)-R_4(COH)_xR_5(COH)_yR_6$

R2 is R1 or H

R3 is R1 or H

R4 is C0-20 alkyl

R5 is C0-C20 alkyl

R6 is C0-C20 alkyl

$R_4+R_5+R_6=C_{10-22}$

and wherein $1 \leq x+y \leq 4$

(ii) $R_7-(C=O)-OM$

wherein R7 is $-R_4(COH)_xR_5(COH)_yR_6$, M is Na^+ , K^+ ,
or Mg^{2+} , or H,

and (iii) mixtures thereof.

The compositions of the present invention provide an improvement in stability and rheology characteristics while at the same time providing an excellent rinse feel to the skin.

All concentrations and ratios herein are by weight of the cleansing composition, unless otherwise specified. Surfactant chain lengths are also on a weight average chain length basis, unless otherwise specified.

Detailed Description of the Invention

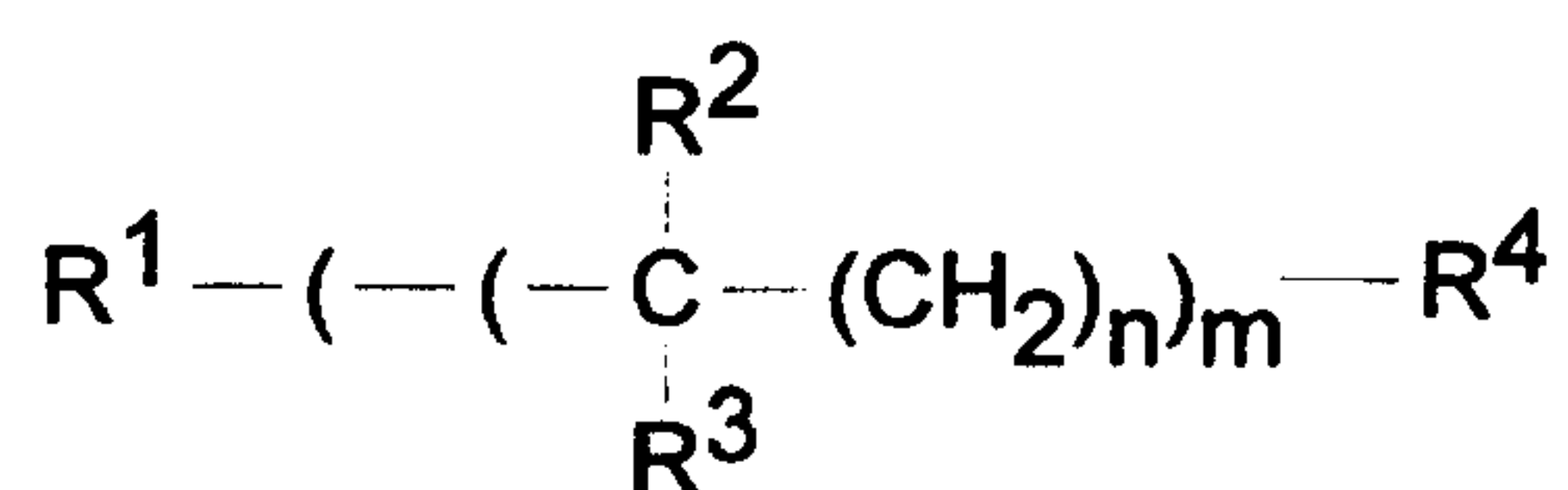
The liquid cleansing compositions herein comprise water, surfactant, crystalline hydroxy-containing stabilizer and a certain water-insoluble oil which will be described below.

As used herein the term "rinse feel" means the feeling of the skin during the process of rinsing lather from the skin after cleansing with a cleansing composition. The type of rinse feel which is provided by the compositions of the present invention can be described by terms such as a "draggy" rinse

feel, a "soap-like" rinse feel and a "non-slippery" or "non-slimy" rinse feel. Such a "draggy", "soap-like", "non-slippery" or "non-slimy" rinse feel can be detected by an increase in friction between the hand and skin during the process of rinsing lather from the skin.

As used herein the term "water-insoluble" in relation to oils is a material which is substantially insoluble in distilled water at room temperature without the addition of other adjuncts and/or ingredients such as described herein.

The water-insoluble oil for use herein is selected from (a) highly branched polyalphaolefins having the following formula:



wherein R^1 is H or C_1 - C_{20} alkyl, R^4 is C_1 - C_{20} alkyl, R^2 is H or C_1 - C_{20} , and R^3 is C_5 - C_{20} , n is an integer from 0 to 3 and m is an integer of from 1 to 1000 and having a number average molecular weight of from about 1000 to about 25,000, preferably from about 2500 to about 6000, more preferably from about 2500 to about 4000. Preferably the polyalphaolefins of type (a) use herein have a viscosity of from about 300cst to about 50,000cst, preferably from about 1000cst to about 12,000 cst, more preferably from about 1000cst to about 4000cst at 40°C using the ASTM D-445 method for measuring viscosity. The oils of type (a) may also have a degree of unsaturation, but are preferably saturated.

Suitable polyalphaolefins of type (a) as described above can be derived from 1-alkene monomers having from about 4 to about 20 carbon atoms, preferably from about 6 to about 12 carbon atoms, especially from about 8 to about 12 carbon atoms. The polyalphaolefins useful herein are preferably hydrogenated polyalphaolefin polymers.

Non-limiting examples of 1-alkene monomers for use in preparing the polyalphaolefin polymers herein include 1-hexene, 1-octene, 1-decene, 1-

dodecene, 1-tetradecene, branched chain isomers such as 4-methyl-1-pentene, and combinations thereof. Also suitable for preparing the polyolefin liquids are 1-hexene to 1-hexadecenes and combinations thereof, more preferably 1-octene to 1-dodecene or combinations thereof.

Examples of such oils include polydecene oils such as those commercially available from Mobil Chemical Company, P.O. Box 3140, Edison, New Jersey 08818, USA, under the tradename Puresyn 40 and Puresyn 100.

Particularly preferred from the viewpoint of improving rinse feel of the composition is a highly branched polyalphaolefin material of type (a) having a number average molecular weight of from about 2500 to about 4000 and a viscosity of from about 100cst to about 2000 cst (ASTM D-445 at 45°C) such as that commercially available from Mobil under the tradename Puresyn 100.

Mixtures of the above oils are also suitable for use herein.

In preferred embodiments the number average particle diameter for the water-insoluble oil used herein lies in the range of from about 1 micron to about 500 microns, preferably from about 5 to about 200 microns, more preferably from about 5 to 50 microns, especially from about 5 to about 20 microns.

The compositions herein preferably comprise from about 0.1% to about 20%, more preferably from about 0.5% to about 10%, especially from about 1% to about 5% by weight of water-insoluble oil.

Surfactant System

As a further essential feature the compositions of the present invention comprise a surfactant system of water-soluble surfactants. Water-soluble, as defined herein, means a surfactant having a molecular weight of less than about 20,000 wherein the surfactant is capable of forming a clear isotropic solution when dissolved in water at 0.2 % w/w under ambient conditions. Surfactants suitable for inclusion in compositions according to the present

invention generally have a lipophilic chain length of from about 6 to about 22 carbon atoms and can be selected from anionic, nonionic, zwitterionic and amphoteric surfactants and mixtures thereof. The total level of surfactant is preferably from about 2% to about 40%, more preferably from about 3% to about 20% by weight, and especially from about 5% to about 15% by weight. The compositions preferably comprise a mixture of anionic with zwitterionic and/or amphoteric surfactants. The weight ratio of anionic surfactant: zwitterionic and/or amphoteric surfactant is in the range from about 1:10 to about 10:1, preferably from about 1:5 to about 5:1, more preferably from about 1:3 to about 3:1. Other suitable compositions within the scope of the invention comprise mixtures of anionic, zwitterionic and/or amphoteric surfactants with one or more nonionic surfactants.

The compositions of the invention can comprise a water-soluble anionic surfactant at levels from about 0.1% to about 20%, more preferably from about 0.1% to about 15%, and especially from about 1% to about 10% by weight.

Water soluble anionic surfactants suitable for inclusion in the compositions of the invention include alkyl sulfates, ethoxylated alkyl sulfates, alkyl ethoxy carboxylates, alkyl glyceryl ether sulfonates, ethoxy ether sulfonates, methyl acyl taurates, fatty acyl glycines, N-acyl glutamates, acyl isethionates, alkyl sulfosuccinates, alkyl ethoxysulphosuccinates, alpha-sulfonated fatty acids, their salts and/or their esters, alkyl phosphate esters, ethoxylated alkyl phosphate esters, acyl sarcosinates and fatty acid/protein condensates, soaps such as ammonium, magnesium, potassium, triethanolamine and sodium salts of lauric acid, myristic acid and palmitic acid, acyl aspartates, alkoxy cocamide carboxylates, (ethoxylated) alkanolamide sulphosuccinates, ethoxylated alkyl citrate sulphosuccinates, acyl ethylene diamine triacetates, acylhydroxyethyl isethionates, acyl amide alkoxy sulfates, linear alkyl benzene sulfonates, paraffin sulfonates, alpha olefin sulfonates, alkyl alkyoxy sulfates, and mixtures thereof. Alkyl and/or acyl chain lengths for these surfactants are C₆-C₂₂, preferably C₁₂-C₁₈ more preferably C₁₂-C₁₄.

Additional water-soluble anionic surfactants suitable for use in the compositions according to the present invention are the salts of sulfuric acid esters of the reaction product of 1 mole of a higher fatty alcohol and from about 1 to about 12 moles of ethylene oxide, with sodium, ammonium and magnesium being the preferred counterions. Particularly preferred are the alkyl ethoxy sulfates containing from about 2 to 6, preferably 2 to 4 moles of ethylene oxide, such as sodium laureth-2 sulfate, sodium laureth-3 sulfate, ammonium laureth-3 sulfate and magnesium sodium laureth-3.6 sulfate. In preferred embodiments, the anionic surfactant contains at least about 50% especially at least about 75% by weight of ethoxylated alkyl sulfate.

In addition to the broad range ethoxylated alkyl sulfates obtained via conventional sodium catalysed ethoxylation techniques and subsequent sulphation processes, ethoxylated alkyl sulfates obtained from narrow range ethoxylates (NREs) are also suitable water-soluble anionic surfactants for use in the present compositions. Narrow range ethoxylated alkyl sulfates suitable for use herein are selected from sulphated alkyl ethoxylates containing on average from about 1 to about 6, preferably from about 2 to about 4 and especially about 3 moles of ethylene oxide such as NRE sodium laureth-3 sulfate. NRE materials suitable for use herein contain distributions of the desired ethylene oxide (EO_n) in the ranges of from 15% to about 30% by weight of EO_n , from about 10% to about 20% by weight of EO_{n+1} and from about 10% to about 20% by weight of EO_{n-1} . Highly preferred NRE materials contain less than about 9% by weight of ethoxylated alkyl sulfate having 7 or more moles of ethylene oxide and less than about 13% by weight of non-ethoxylated alkyl sulfate. Suitable laureth 3 sulfate NRE materials are available from Hoechst under the trade names GENAPOL ZRO Narrow Range and GENAPOL Narrow Range.

The compositions of the present invention may contain, as a water-soluble anionic surfactant alkyl ethoxy carboxylate surfactant at a level of from about 0.5% to about 15%, preferably from about 1% to about 10%, more preferably from about 1% to about 6% and especially from about 1% to about 4% by weight. Alkyl ethoxy carboxylate surfactant is particularly valuable in the compositions according to the present invention for the

delivery of excellent skin mildness attributes in combination with excellent rinsing performance and desirable lather characteristics.

Alkyl ethoxy carboxylates suitable for use herein have the general formula (I):



wherein R^3 is a C_{10} to C_{16} alkyl or alkenyl group, preferably a C_{11} - C_{15} , more preferably a C_{12} - C_{14} alkyl or C_{12} - C_{13} alkyl group, k is an average value of ethoxylation ranging from 2 to about 7, preferably from about 3 to about 6, more preferably from about 3.5 to about 5.5, especially from about 4 to about 5, most preferably from about 4 to about 4.5, and M is a water-solubilizing cation, preferably an alkali metal, alkaline earth metal, ammonium, lower alkanol ammonium, and mono-, di-, and tri-ethanol ammonium, more preferably sodium, potassium and ammonium, most preferably sodium and ammonium and mixtures thereof with magnesium and calcium ions.

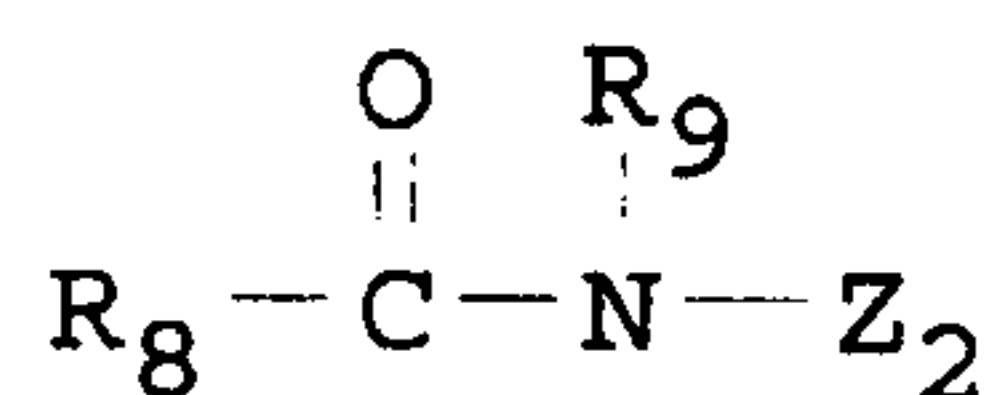
Particularly preferred as water-soluble anionic surfactants suitable for use herein are alkyl ethoxy carboxylate surfactants having a selected distribution of alkyl chain length and/or ethoxylate. Thus, the alkyl ethoxy carboxylate surfactants suitable for use in the compositions according to the present invention may comprise a distribution of alkyl ethoxy carboxylates having different average values of R^3 and/or k .

The average value of k will generally fall in the range of from about 3 to about 6 when the average R^3 is C_{11} , C_{12} , C_{13} or C_{14} . Preferred water-soluble anionic alkyl ethoxy carboxylate surfactants suitable for use herein are the C_{12} to C_{14} (average EO 3-6) ethoxy carboxylates and the C_{12} to C_{13} (average EO 3-6) ethoxy carboxylates. Suitable materials include salts of NEODOX 23-4 (RTM) available from Shell Inc. (Houston, Texas, USA) and EMPICOL (RTM) CBCS (Albright & Wilson). Highly preferred for use herein are alkyl ethoxy carboxylate surfactants wherein, when R^3 is a C_{12} - C_{14} or C_{12} - C_{13} alkyl group and the average value of k is in the range of from about 3 to about 6, more preferably from about 3.5 to about 5.5,

especially from about 4 to about 5 and most preferably from about 4 to about 4.5.

In preferred embodiments the compositions are substantially free of soap, i.e. they contain less than about 5%, preferably less than about 1%, preferably 0%, by weight, of soap.

The compositions according to the present invention may additionally comprise water-soluble nonionic surfactant at levels from about 0.1% to about 20%, more preferably from about 0.1% to about 10%, and especially from about 1% to about 8% by weight. Surfactants of this class include sucrose polyester surfactants, C₁₀-C₁₈ alkyl polyglycosides and polyhydroxy fatty acid amide surfactants having the general formula (III).



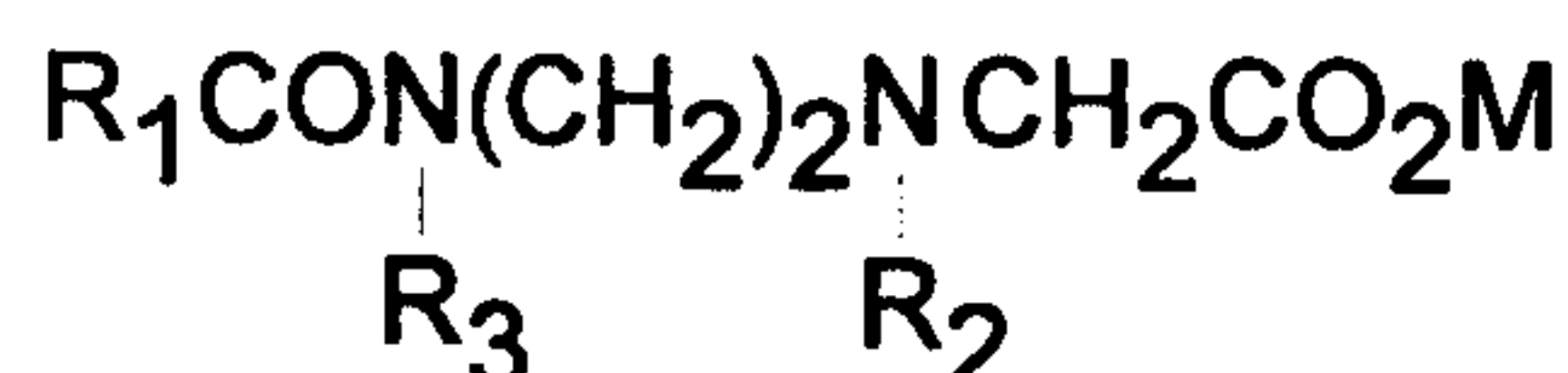
The preferred N-alkyl, N-alkoxy or N-aryloxy, polyhydroxy fatty acid amide surfactants according to formula (III) are those in which R₈ is C₅-C₃₁ hydrocarbyl, preferably C₆-C₁₉ hydrocarbyl, including straight-chain and branched chain alkyl and alkenyl, or mixtures thereof and R₉ is typically, hydrogen, C₁-C₈ alkyl or hydroxyalkyl, preferably methyl, or a group of formula -R¹-O-R² wherein R¹ is C₂-C₈ hydrocarbyl including straight-chain, branched-chain and cyclic (including aryl), and is preferably C₂-C₄ alkylene, R² is C₁-C₈ straight-chain, branched-chain and cyclic hydrocarbyl including aryl and oxyhydrocarbyl, and is preferably C₁-C₄ alkyl, especially methyl, or phenyl. Z₂ is a polyhydroxyhydrocarbyl moiety having a linear hydrocarbyl chain with at least 2 (in the case of glyceraldehyde) or at least 3 hydroxyls (in the case of other reducing sugars) directly connected to the chain, or an alkoxylated derivative (preferably ethoxylated or propoxylated) thereof. Z₂ preferably will be derived from a reducing sugar in a reductive amination reaction, most preferably Z₂ is a glycityl moiety. Suitable reducing sugars include glucose, fructose, maltose, lactose, galactose, mannose, and xylose, as well as glyceraldehyde. As raw materials, high dextrose corn syrup, high fructose corn syrup, and high maltose corn syrup can be utilised as well as

the individual sugars listed above. These corn syrups may yield a mix of sugar components for Z₂. It should be understood that it is by no means intended to exclude other suitable raw materials. Z₂ preferably will be selected from the group consisting of CH₂-(CHOH)_n-CH₂OH, CH(CH₂OH)-(CHOH)_{n-1}-CH₂OH, CH₂(CHOH)₂(CHOR')CHOH)CH₂OH, where n is an integer from 1 to 5, inclusive, and R' is H or a cyclic mono- or poly-saccharide, and alkoxylated derivatives thereof. As noted, most preferred are glycityls wherein n is 4, particularly CH₂-(CHOH)₄-CH₂OH.

The most preferred polyhydroxy fatty acid amide has the formula R₈(CO)N(CH₃)CH₂(CHOH)₄CH₂OH wherein R₈ is a C₆-C₁₉ straight chain alkyl or alkenyl group. In compounds of the above formula, R₈-CO-N< can be, for example, cocoamide, stearamide, oleamide, lauramide, myristamide, capricamide, caprylicamide, palmitamide, tallowamide, etc.

Exemplary non-ionic surfactants suitable for use in the compositions according to the present invention include primary amines such as cocamine (available as Adagen 160D (TM) from Witco) and alkanolamides such as cocamide MEA (available as Empilan CME (TM) from Albright and Wilson), PEG-3 cocamide, cocamide DEA (available as Empilan CDE (TM) from Albright and Wilson), lauramide MEA (available as Empilan LME (TM) from Albright and Wilson), lauramide MIPA, lauramide DEA, and mixtures thereof.

Suitable amphoteric surfactants for use herein include (a) ammonium derivatives of formula [V]:

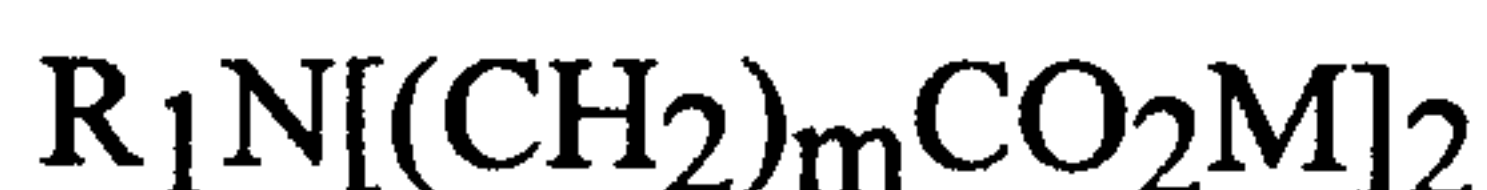


wherein R₁ is C₅-C₂₂ alkyl or alkenyl, R₂ is CH₂CH₂OH or CH₂CO₂M, M is H, alkali metal, alkaline earth metal, ammonium or alkanolammonium and R₃ is CH₂CH₂OH or H;

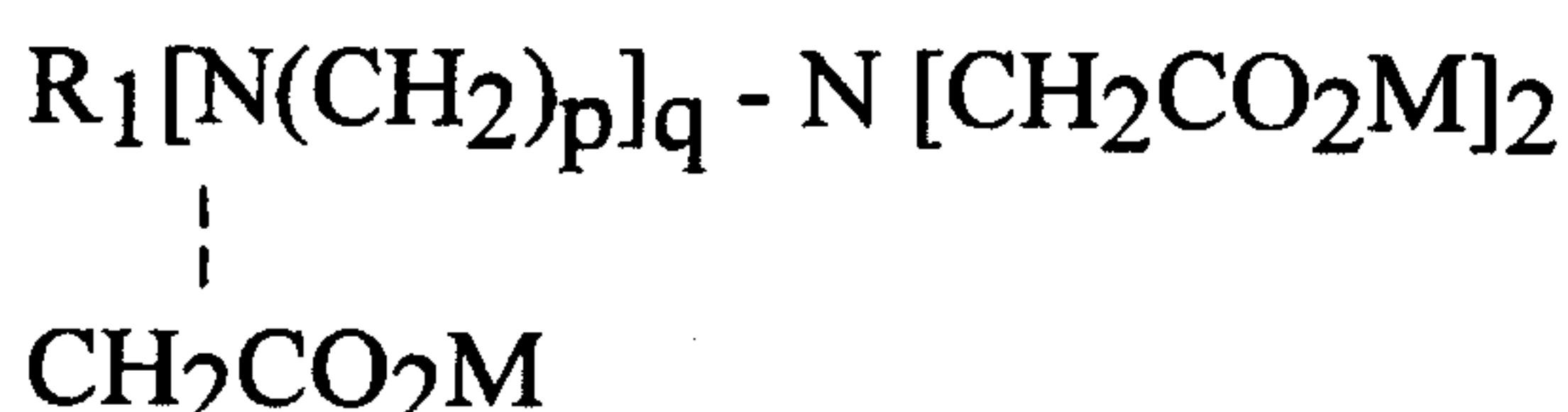
(b) aminoalkanoates of formula [VI]



iminodialkanoates of formula [VII]



and iminopolyalkanoates of formula (VIII)



wherein n, m, p, and q are numbers from 1 to 4, and R₁ and M are independently selected from the groups specified above; and

(c) mixtures thereof.

Suitable amphoteric surfactants of type (a) include compounds of formula (V) in which R₁ is C₈H₁₇ (especially isocapryl), C₉H₁₉ and C₁₁H₂₃ alkyl. Suitable amphoteric surfactants of type (a) are marketed under the trade name Miranol and Empigen.

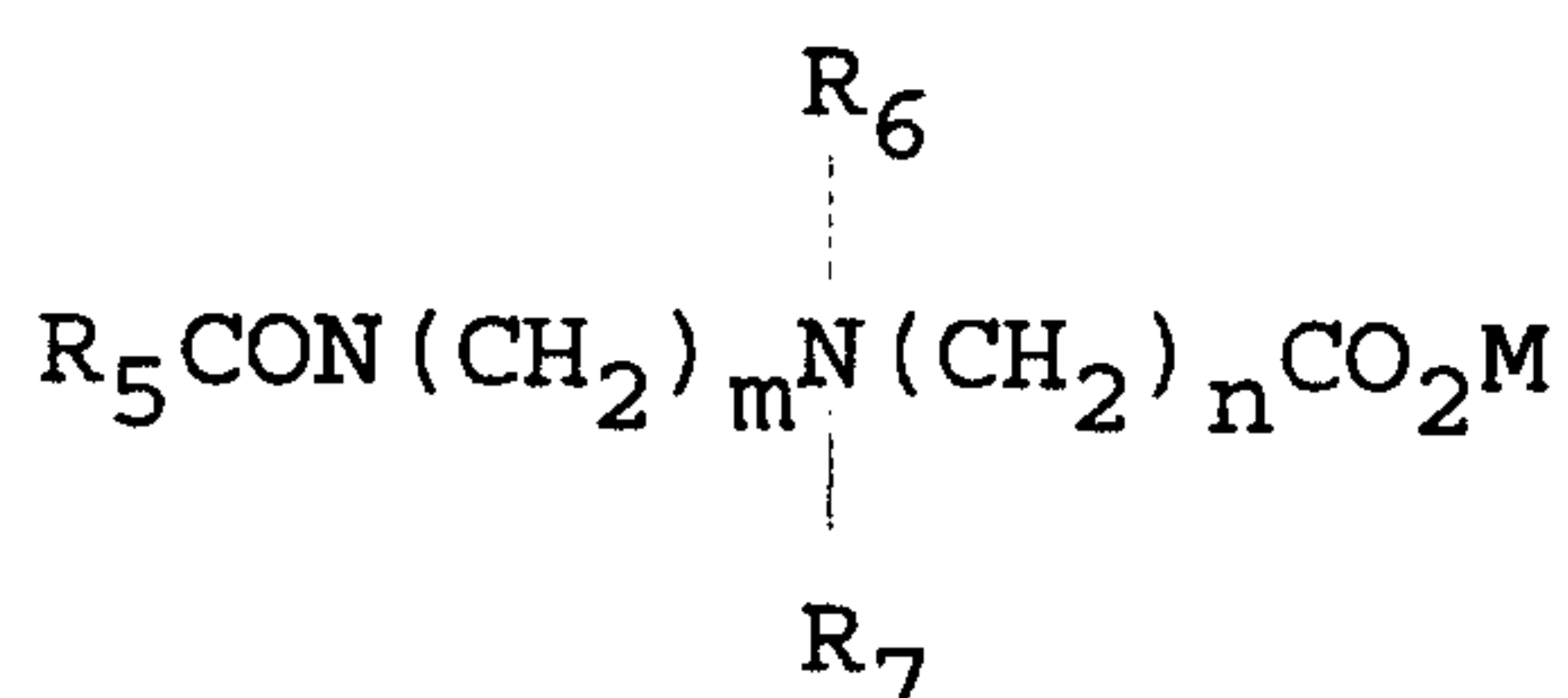
In CTFA nomenclature, materials suitable for use in the present invention include cocoamphocarboxypropionate, cocoamphocarboxy propionic acid, cocoamphoacetate, cocoamphodiacetate (otherwise referred to as cocoamphocarboxyglycinate), sodium lauroamphoacetate (otherwise referred to as sodium lauroamphocarboxyglycinate). Specific commercial products include those sold under the trade names of Ampholak 7TX (sodium carboxy methyl tallow polypropyl amine), Empigen CDL60 and CDR 60 (Albright & Wilson), Miranol H2M Conc. Miranol C2M Conc. N.P., Miranol C2M Conc. O.P., Miranol C2M SF, Miranol CM Special, Miranol Ultra L32 and C32 (Rhône-Poulenc); Alkateric 2CIB (Alkaril Chemicals); Amphoterger W-2 (Lonza, Inc.); Monateric CDX-38, Monateric CSH-32 (Mona Industries); Rewoteric AM-2C (Rewo Chemical Group); and Schercotic MS-2 (Scher Chemicals).

It will be understood that a number of commercially-available amphoteric surfactants of this type are manufactured and sold in the form of electroneutral complexes with, for example, hydroxide counterions or with anionic sulfate or sulfonate surfactants, especially those of the sulfated C₈-C₁₈ alcohol, C₈-C₁₈ ethoxylated alcohol or C₈-C₁₈ acyl glyceride types. Preferred from the viewpoint of mildness and product stability, however, are compositions which are essentially free of (non-ethoxylated) sulfated alcohol surfactants. Note also that the concentrations and weight ratios of the amphoteric surfactants are based herein on the uncomplexed forms of the surfactants, any anionic surfactant counterions being considered as part of the overall anionic surfactant component content.

Examples of suitable amphoteric surfactants of type (b) include N-alkyl polytrimethylene poly-, carboxymethylamines sold under the trade names Ampholak X07 and Ampholak 7CX by Berol Nobel and also salts, especially the triethanolammonium salts and salts of N-lauryl-beta-amino propionic acid and N-lauryl-imino-dipropionic acid. Such materials are sold under the trade name Deriphat by Henkel and Mirataine by Rhône-Poulenc.

The compositions herein can also contain from about 0.1% to about 20%, more preferably from about 0.1% to about 10%, and especially from about 1% to about 8% by weight of a zwitterionic surfactant.

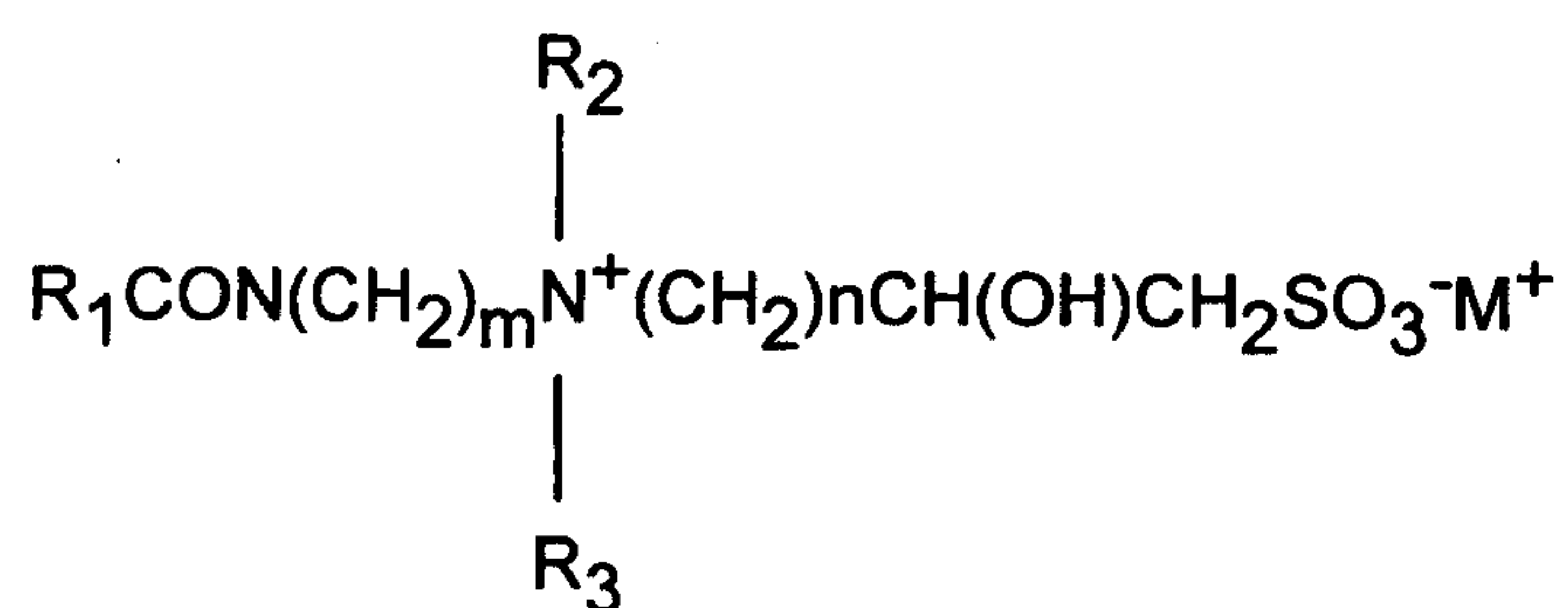
Water-soluble betaine surfactants suitable for inclusion in the compositions of the present invention include alkyl betaines of the formula $R_5R_6R_7N^+(CH_2)_nCO_2M$ and amido betaines of the formula (IX)



wherein R₅ is C₅-C₂₂ alkyl or alkenyl, R₆ and R₇ are independently C₁-C₃ alkyl, M is H, alkali metal, alkaline earth metal, ammonium or

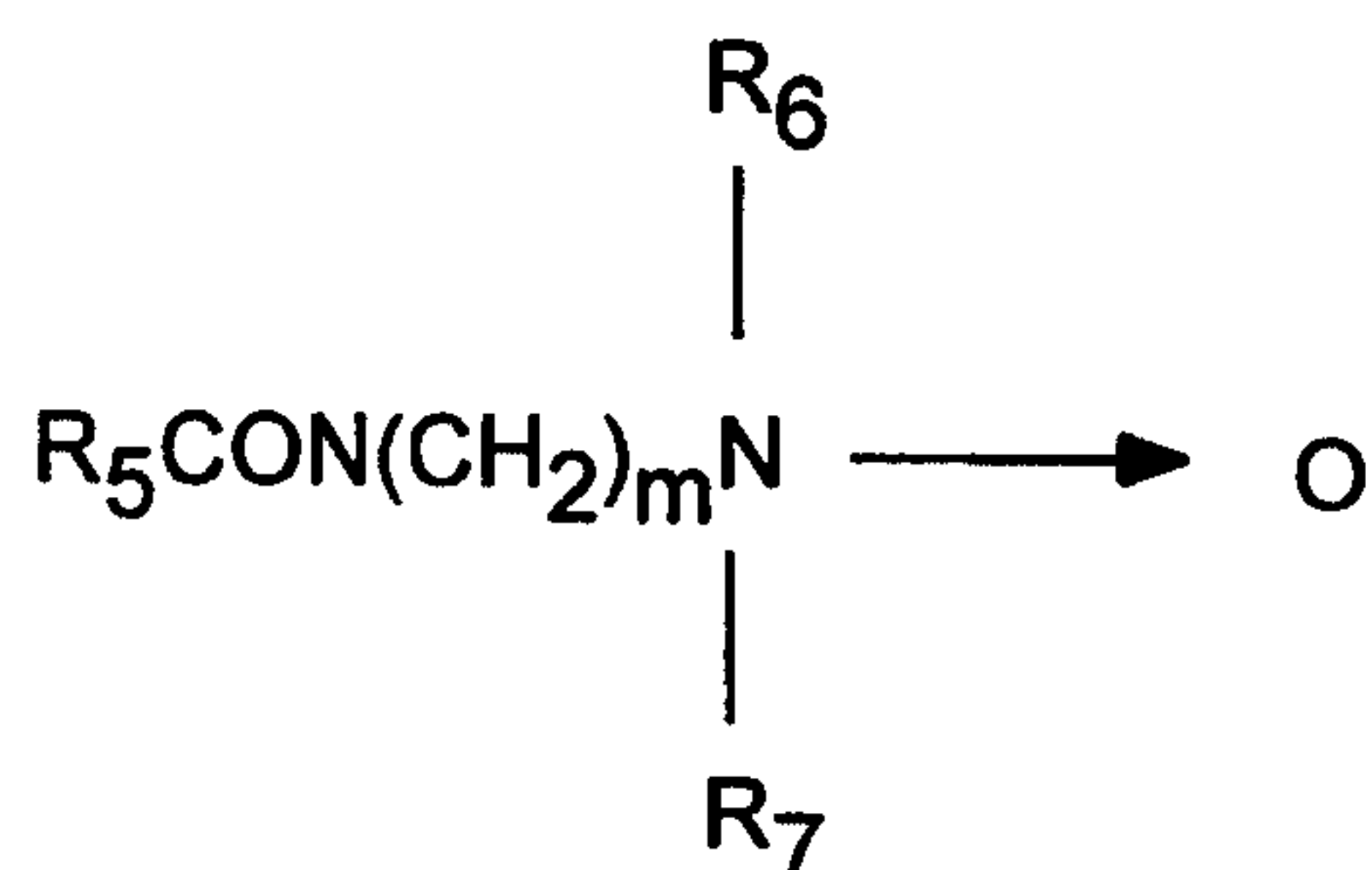
alkanolammonium, and n, m are each numbers from 1 to 4. Preferred betaines include cocoamidopropyldimethylcarboxymethyl betaine, commercially available from TH Goldschmidt under the tradename Tego betaine, and laurylamidopropyldimethylcarboxymethyl betaine, commercially available from Albright and Wilson under the tradename Empigen BR and from TH Goldschmidt under the tradename Tegobetaine L10S.

Water-soluble sultaine surfactants suitable for inclusion in the compositions of the present invention include alkylamido sultaines of the formula;



wherein R₁ is C₇ to C₂₂ alkyl or alkenyl, R₂ and R₃ are independently C₁ to C₃ alkyl, M is H, alkali metal, alkaline earth metal, ammonium or alkanolammonium and m and n are numbers from 1 to 4. Suitable for use herein is coco amido propylhydroxy sultaine which is commercially available under the tradename Mirataine CBS from Rhone-Poulenc.

Water-soluble amine oxide surfactants suitable for inclusion in the compositions of the present invention include alkyl amine oxide R₅R₆R₇NO and amido amine oxides of the formula



wherein R₅ is C₁₁ to C₂₂ alkyl or alkenyl, R₆ and R₇ are independently C₁ to C₃ alkyl, M is H, alkali metal, alkaline earth metal, ammonium or

alkanolammonium and m is a number from 1 to 4. Preferred amine oxides include cocoamidopropylamine oxide, lauryl dimethyl amine oxide and myristyl dimethyl amine oxide.

Polymeric Cationic Conditioning Agent

The compositions according to the present invention can optionally include a polymeric cationic conditioning agent. Polymeric cationic conditioning agents are valuable in the compositions according to the present invention for provision of desirable skin feel attributes. The polymeric skin conditioning agent is preferably present at a level from about 0.01% to about 5%, preferably from about 0.01% to about 3% and especially from about 0.01% to about 2% by weight.

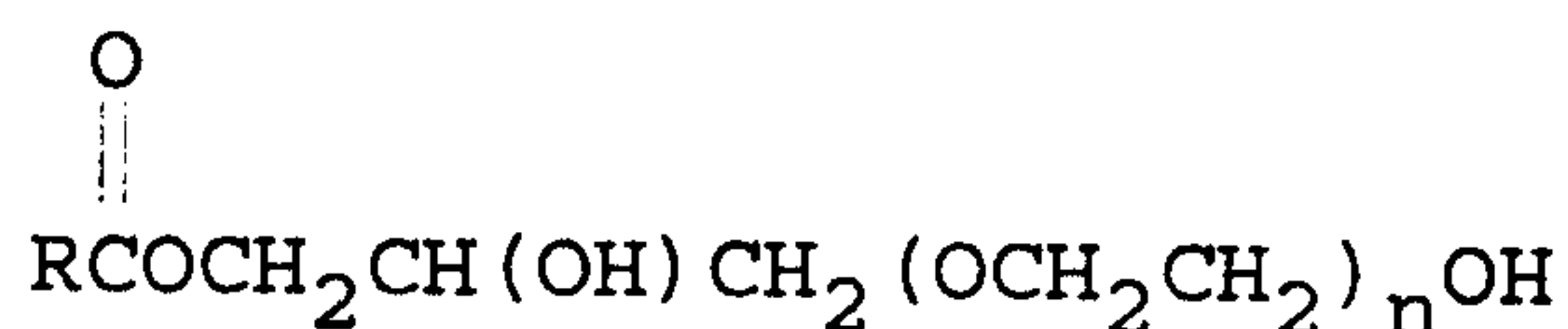
Suitable polymers are high molecular weight materials (mass-average molecular weight determined, for instance, by light scattering, being generally from about 2,000 to about 5,000,000, preferably from about 5,000 to about 3,000,000 more preferably from 100,000 to about 1,000,000).

Representative classes of polymers include cationic guar gums, cationic polysaccharides; cationic homopolymers and copolymers derived from acrylic and/or methacrylic acid; cationic cellulose resins, quaternized hydroxy ethyl cellulose ethers; cationic copolymers of dimethyldiallylammonium chloride and acrylamide and/or acrylic acid; cationic homopolymers of dimethyldiallylammonium chloride; copolymers of dimethyl aminoethylmethacrylate and acrylamide, acrylic acid/dimethyldiallylammonium chloride/acrylamide copolymers, quaternised vinyl pyrrolidone acrylate or methacrylate copolymers of amino alcohol, quaternized copolymers of vinyl pyrrolidone and dimethylaminoethylmethacrylamide, vinyl pyrrolidone/vinyl imidazolium methochloride copolymers and polyalkylene and ethoxypolyalkylene imines; quaternized silicones, terpolymers of acrylic acid, methacrylamidopropyl trimethyl ammonium chloride and methyl acrylate, and mixtures thereof.

By way of exemplification, cationic polymers suitable for use herein include cationic guar gums such as hydroxypropyl trimethyl ammonium guar gum (d.s. of from 0.11 to 0.22) available commercially under the trade names Jaguar C-14-S(RTM) and Jaguar C-17(RTM) and also Jaguar C-16(RTM), which contains hydroxypropyl substituents (d.s. of from 0.8-1.1) in addition to the above-specified cationic groups, and quaternized hydroxy ethyl cellulose ethers available commercially under the trade names Ucare Polymer JR-30M, JR-400, LR400, Catalan (RTM) and Celquat. Other suitable cationic polymers are homopolymers of dimethyldiallylammonium chloride available commercially under the trade name Merquat 100, copolymers of dimethyl aminoethylmethacrylate and acrylamide, copolymers of dimethyldiallylammonium chloride and acrylamide, available commercially under the trade names Merquat 550 and Merquat S, acrylic acid/dimethyldiallylammonium chloride/acrylamide copolymers available under the trade name Merquat 3330, terpolymers of acrylic acid, methacrylamidopropyl trimethyl ammonium chloride and methyl acrylate commercially available under the tradename Merquat 2001, quaternized vinyl pyrrolidone acrylate or methacrylate copolymers of amino alcohol available commercially under the trade name Gafquat, for example Polyquaternium 11, 23 and 28 (quaternized copolymers of vinyl pyrrolidone and dimethyl aminoethylmethacrylate - Gafquat 755N and quaternized copolymers of vinyl pyrrolidone and dimethyl aminoethylmethacrylamide - HS-100), vinyl pyrrolidone/vinyl imidazolium methochloride copolymers available under the trade names Luviquat FC370, Polyquaternium 2, and polyalkyleneimines such as polyethylenimine and ethoxylated polyethylenimine. Also suitable for use herein are those cationic polymers commercially available under the tradename Aqualon N-Hance.

The compositions of the invention may also contain from about 0.1% to about 20%, preferably from about 1% to about 15%, and more preferably from about 2% to about 10% by weight of an oil derived nonionic surfactant or mixture of oil derived nonionic surfactants. Oil derived nonionic surfactants are valuable in compositions according to the invention for the provision of skin feel benefits both in use and after use. Suitable oil derived nonionic surfactants for use herein include water

soluble vegetable and animal-derived emollients such as triglycerides with a polyethyleneglycol chain inserted; ethoxylated mono and di-glycerides, polyethoxylated lanolins and ethoxylated butter derivatives. One preferred class of oil-derived nonionic surfactants for use herein have the general formula (XII)



wherein n is from about 5 to about 200, preferably from about 20 to about 100, more preferably from about 30 to about 85, and wherein R comprises an aliphatic radical having on average from about 5 to 20 carbon atoms, preferably from about 7 to 18 carbon atoms.

Suitable ethoxylated oils and fats of this class include polyethyleneglycol derivatives of glyceryl cocoate, glyceryl caproate, glyceryl caprylate, glyceryl tallowate, glyceryl palmate, glyceryl stearate, glyceryl laurate, glyceryl oleate, glyceryl ricinoleate, and glyceryl fatty esters derived from triglycerides, such as palm oil, almond oil, and corn oil, preferably glyceryl tallowate and glyceryl cocoate.

Suitable oil derived nonionic surfactants of this class are available from Croda Inc. (New York, USA) under their Crovol line of materials such as Crovol EP40 (PEG 20 evening primrose glyceride), Crovol EP 70 (PEG 60 evening primrose glyceride) Crovol A-40 (PEG 20 almond glyceride), Crovol A-70 (PEG 60 almond glyceride), Crovol M-40 (PEG 20 maize glyceride), Crovol M-70 (PEG 60 maize glyceride), Crovol PK-40 (PEG 12 palm kernel glyceride), and Crovol PK-70 (PEG 45 palm kernel glyceride) and under their Solan range of materials such as Solan E, E50 and X polyethoxylated lanolins and Aqualose L-20 (PEG 24 lanolin alcohol) and Aqualose W15 (PEG 15 lanolin alcohol) available from Westbrook Lanolin. Further suitable surfactants of this class are commercially available from Sherex Chemical Co. (Dublin, Ohio, USA) under their Varonic LI line of surfactants and from Rewo under their Rewoderm line of surfactants. These include, for example, Varonic LI 48 (polyethylene glycol (n=80) glyceryl tallowate, alternatively referred to as PEG 80

glyceryl tallowate), Varonic LI 2 (PEG 28 glyceryl tallowate), Varonic LI 420 (PEG 200 glyceryl tallowate), and Varonic LI 63 and 67 (PEG 30 and PEG 80 glyceryl cocoates), Rewoderm LI5-20 (PEG-200 palmitate), Rewoderm LIS-80 (PEG-200 palmitate with PEG-7 glyceryl cocoate) and Rewoderm LIS-75 (PEG-200 palmitate with PEG-7 glyceryl cocoate) and mixtures thereof. Other oil-derived emollients suitable for use are PEG derivatives of corn, avocado, and babassu oil, as well as Softigen 767 (PEG(6) caprylic/capric glycerides).

Also suitable for use herein are nonionic surfactants derived from composite vegetable fats extracted from the fruit of the Shea Tree (*Butyrospermum Karkii* Kotschy) and derivatives thereof. This vegetable fat, known as Shea Butter is widely used in Central Africa for a variety of means such as soap making and as a barrier cream, it is marketed by Sederma (78610 Le Perray En Yvelines, France). Particularly suitable are ethoxylated derivatives of Shea butter available from Karlshamn Chemical Co. (Columbos, Ohio, USA) under their Lipex range of chemicals, such as Lipex 102 E-75 and Lipex 102 E-3 (ethoxylated mono, di-glycerides of Shea butter) and from Croda Inc. (New York, USA) under their Crovol line of materials such as Crovol SB-70 (ethoxylated mono, di-glycerides of Shea butter). Similarly, ethoxylated derivatives of Mango, Cocoa and Illipe butter may be used in compositions according to the invention. Although these are classified as ethoxylated nonionic surfactants it is understood that a certain proportion may remain as non-ethoxylated vegetable oil or fat.

Other suitable oil-derived nonionic surfactants include ethoxylated derivatives of almond oil, peanut oil, rice bran oil, wheat germ oil, linseed oil, jojoba oil, oil of apricot pits, walnuts, palm nuts, pistachio nuts, sesame seeds, rapeseed, cade oil, corn oil, peach pit oil, poppyseed oil, pine oil, castor oil, soybean oil, avocado oil, safflower oil, coconut oil, hazelnut oil, olive oil, grapeseed oil, and sunflower seed oil.

Oil derived nonionic surfactants highly preferred for use herein from the viewpoint of optimum mildness and skin feel characteristics are Lipex 102-3 (RTM) (PEG-3 ethoxylated derivatives of Shea Butter) and Softigen 767 (RTM) (PEG-6 caprylic/capric glycerides).

The compositions according to the present invention can also comprise lipophilic emulsifiers as skin care actives. Suitable lipophilic skin care actives include anionic food grade emulsifiers which comprise a di-acid mixed with a monoglyceride such as succinylated monoglycerides, monostearyl citrate, glyceryl monostearate diacetyl tartrate and mixtures thereof.

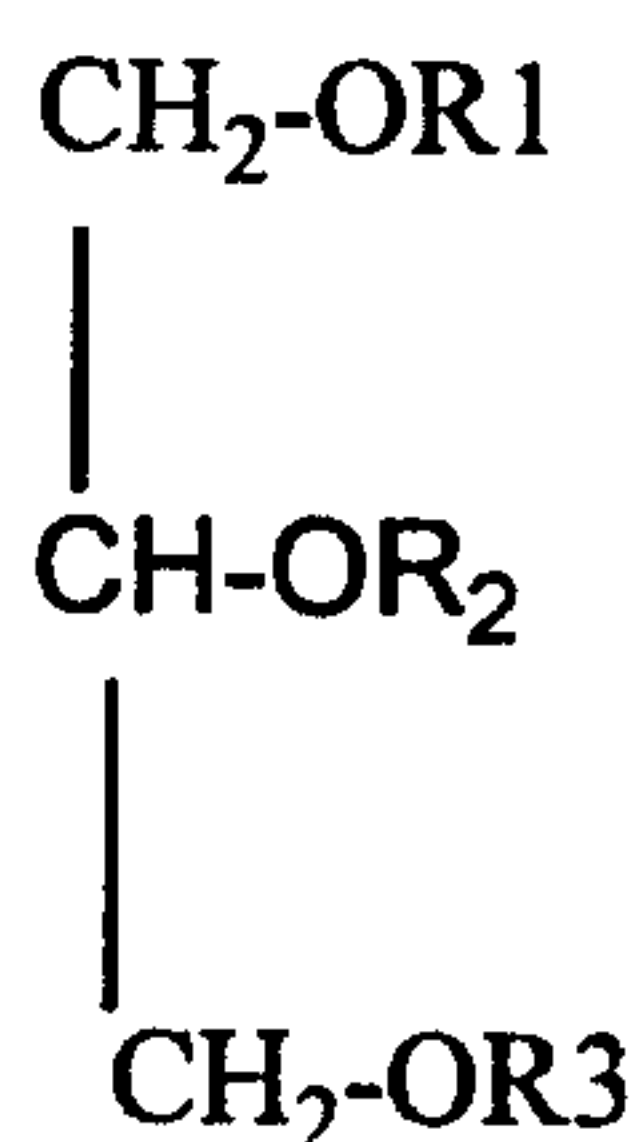
Crystalline, Hydroxyl-containing Stabilizer

Another essential ingredient of the compositions herein is a crystalline, hydroxy-containing stabilizer. The crystalline, hydroxy-containing stabilizer is present in the compositions herein at a level of from about 0.5% to about 10%, preferably from about 0.75% to about 8%, more preferably from about 1.25% to about 5% by weight.

Suitable crystalline, hydroxy-containing stabilizer materials for use herein are hydroxy-containing fatty acids, fatty esters, fatty soap water-insoluble wax-like substances.

Suitable crystalline, hydroxy-containing stabilizer materials for use herein are selected from:

(i)



wherein

R1 is $-(\text{C}=\text{O})\text{-R}_4(\text{COH})_x\text{R}_5(\text{COH})_y\text{R}_6$

R2 is R1 or H

R3 is R1 or H

R4 is C0-20 alkyl

R5 is C0-C20 alkyl
 R6 is C0-C20 alkyl
 $R4+R5+R6=C10-22$
 and wherein $1 \leq x+y \leq 4$

(ii) $R7-(C=O)-OM$

wherein R7 is $-R4(COH)_xR5(COH)_yR6$, M is Na^+ , K^+ ,
 or Mg^{2+} , or H,

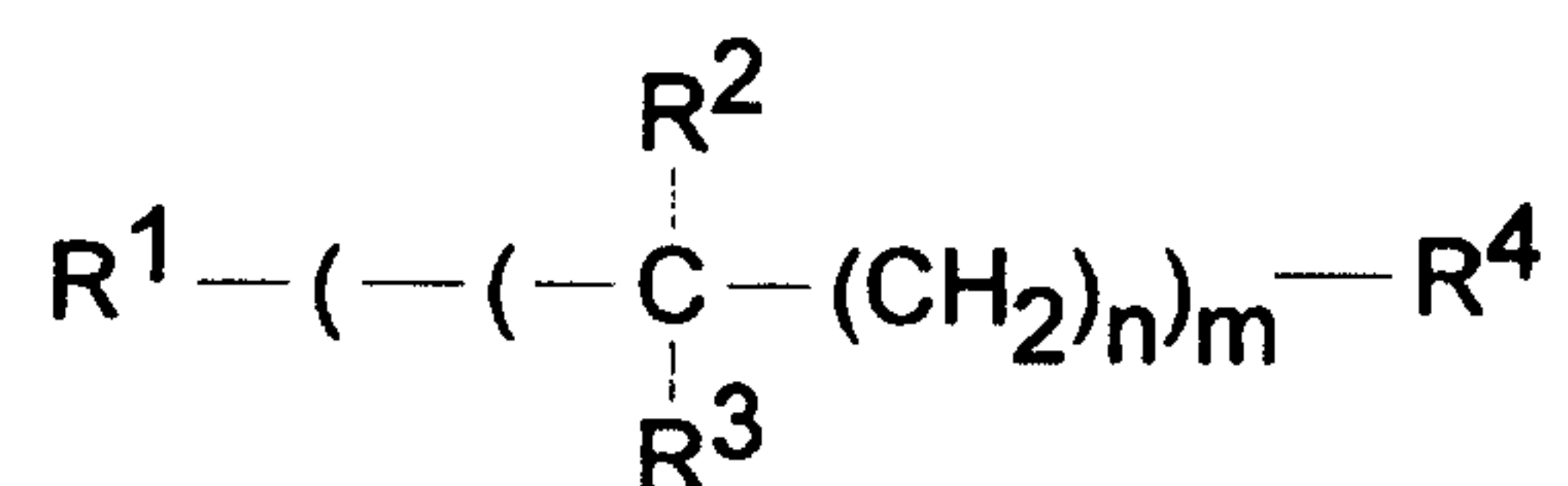
and (iii) mixtures thereof.

Examples of preferred hydroxy-containing stabilizers for use herein include 12-hydroxystearic acid, 9,10-dihydroxystearic acid, tri-9,10-dihydroxystearin and tri-12-hydroxystearin. Particularly preferred for use herein from the viewpoint of improving stability and rheology in combination with the polyalphaolefin oils is tri-12-hydroxystearin.

Optional Ingredients

The compositions herein can additionally comprise a wide variety of optional ingredients. Non-limiting examples of such ingredients are described below.

In addition to the water-insoluble polyalphaolefin oils described above other water-insoluble oils can be used in the compositions of the present invention. Additional water-insoluble oils for use in the personal cleansing compositions of the present invention those of type (b) which are branched alk(en)yl materials having the following formula:



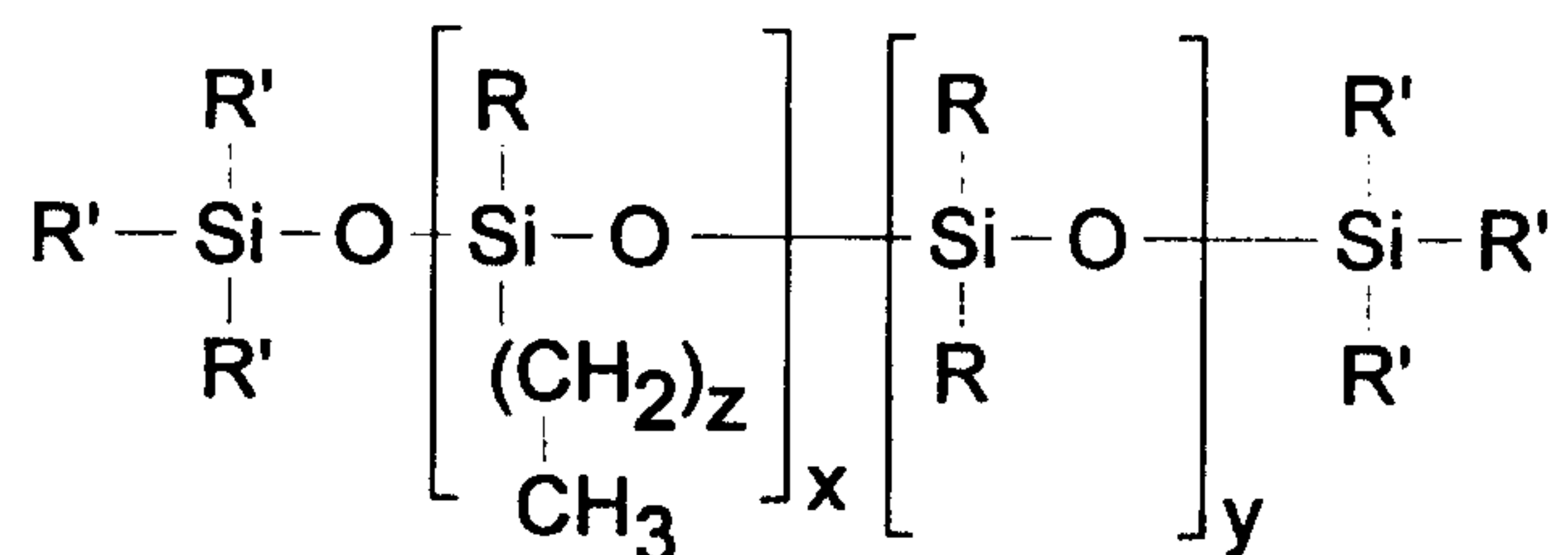
wherein R^1 is H or C₁-C₄ alkyl, R^4 is C₁-C₄ alkyl, R^2 is H or C₁-C₄ alkyl or C₂-C₄ alkenyl, and R^3 is H or C₁-C₄ alkyl or C₂-C₄ alkenyl, n is an

integer from 0 to 3 and m is an integer of from 1 to 1000 and having a number average molecular weight of from about 600 to about 1000, preferably from about 750 to about 1000, especially from about 800 to about 1000. Preferably the branched alk(en)yl materials of type have a viscosity in the range of from about 500cst to about 50,000cst, preferably from about 1000cst to about 10,000cst measured at 40°C using the ASTM method D-445 for measuring viscosity.

Suitable alk(en)yl materials of type (b) for use herein are polymers of butene, isoprene, terpene, styrene or isobutene, preferably butene or isobutene.

Examples of alk(en)yl oils of type (b) include polybutene oils such as those commercially available from Amoco under the tradename Indopol 40 and Indopol 100 and polyisobutene oils such as those commercially available from Presperse Inc. under the tradename Permethyl 104A and Parapol 950 from Exxon Chemicals Co..

Also suitable for use herein are hydrophobically modified silicones having the following formula: hydrophobically modified silicones having the following formula:



wherein R is C1-C4 alkyl or phenyl, R' is C1-C20 alkyl or phenyl, z is 5 to 21, and x has a number average value in the range of from about 20 to 400, y has a number average value in the range of from about 0 to about 10 and x + y lies in the range of 30 to 400. Preferred materials have values for x of from 40 to 200, preferably 60 to 100, values for y of from 0 to 5, preferably 0, and values for the sum of x and y of from 60 to 100. The alkylene chain z may be linear or branched. In addition, the silicone backbone may

contain a small degree of branching to yield a resin (eg. MDQ or MDT resins).

Examples of such oils include those hydrophobically modified silicones available from GE Silicones under the tradename SF1632 (C16-C18 alkyl methicone), and octyl and decyl methicone.

In preferred embodiments the number average particle diameter for the additional water-insoluble oil used herein lies in the range of from about 1 micron to about 500 microns, preferably from about 5 to about 200 microns, more preferably from about 5 to 50 microns, especially from about 5 to about 20 microns.

The present compositions can also comprise an auxiliary nonionic or anionic polymeric thickening component, especially a water-soluble polymeric materials, having a molecular weight greater than about 20,000. By "water-soluble polymer" is meant that the material will form a substantially clear solution in water at a 1% concentration at 25°C and the material will increase the viscosity of the water. Examples of water-soluble polymers which may desirably be used as an additional thickening component in the present compositions, are hydroxyethylcellulose, hydroxypropyl cellulose, hydroxypropyl methylcellulose, polyethylene glycol, polyacrylamide, polyacrylic acid, polyvinyl alcohol (examples include PVA 217 from Kurary Chemical Co., Japan), polyvinyl pyrrolidone K-120, dextrans, for example Dextran purified crude Grade 2P, available from D&O Chemicals, carboxymethyl cellulose, plant exudates such as acacia, ghatti, and tragacanth, seaweed extracts such as sodium alginate, propylene glycol alginate and sodium carrageenan. Preferred as the additional thickeners for the present compositions are natural polysaccharide materials. Examples of such materials are guar gum, locust bean gum, and xanthan gum. Also suitable herein preferred is hydroxyethyl cellulose having a molecular weight of about 700,000.

Hydrotrope

The compositions according to the present invention may contain as an optional feature a hydrotrope. Suitable for use herein as hydrotropes are those well known in the art, including sodium xylene sulphonate, ammonium xylene sulphonate, sodium cumene sulphonate, short chain alkyl sulphate and mixtures thereof. Hydrotrope may be present in the compositions according to the invention at a level of from about 0.01% to about 5%, preferably from about 0.1% to about 4%, more preferably from about 0.5% to about 3% by weight. Hydrotrope, as defined herein, means, a material which, when added to a non-dilute, water-soluble surfactant system can modify its viscosity and rheological profile.

In addition to the water-insoluble oil described above, the compositions of the invention may also include an insoluble perfume or cosmetic oil or wax or a mixture thereof at a level up to about 10%, preferably up to about 3% by weight wherein the oil or wax is insoluble in the sense of being insoluble in the product matrix at a temperature of 25°C.

Suitable insoluble cosmetic oils and waxes for use herein can be selected from water-insoluble silicones inclusive of non-volatile polyalkyl and polyaryl siloxane gums and fluids, volatile cyclic polydimethylsiloxanes, polyalkoxylated silicones, amino and quaternary ammonium modified silicones, rigid cross-linked and reinforced silicones and mixtures thereof, C₁-C₂₄ esters of C₈-C₃₀ fatty acids such as isopropyl myristate, myristyl myristate and cetyl ricinoleate, C₈-C₃₀ esters of benzoic acid, beeswax, saturated and unsaturated fatty alcohols such as behenyl alcohol, hydrocarbons such as mineral oils, petrolatum, squalane and squalene, fatty sorbitan esters (see US-A-3988255, Seiden, issued October 26th 1976), lanolin and oil-like lanolin derivatives, animal and vegetable triglycerides such as almond oil, peanut oil, wheat germ oil, rice bran oil, linseed oil, jojoba oil, oil of apricot pits, walnuts, palm nuts, pistachio nuts, sesame seeds, rapeseed, cade oil, corn oil, peach pit oil, poppyseed oil, pine oil, castor oil, soyabean oil, avocado oil, safflower oil, coconut oil, hazelnut oil, olive oil, grapeseed oil, and sunflower seed oil, and C₁-C₂₄ esters of dimer and trimer acids such as diisopropyl dimerate, diisostearylmalate, diisostearyldimerate and triisostearyltrimerate.

The viscosity of the final composition (Brookfield DV II, with Cone CP41 or CP52, 25°C, neat) is preferably at least about 500 cps, more preferably from about 1,000 to about 50,000 cps, especially from about 1,000 to about 30,000 cps, more especially from about 1,000 to about 15,000 cps.

The cleansing compositions can optionally include other hair or skin moisturizers which are soluble in the cleansing composition matrix. The preferred level of such moisturizers is from about 0.5% to about 20% by weight. In preferred embodiments, the moisturizer is selected from essential amino acid compounds found naturally occurring in the stratum corneum of the skin and water-soluble nonpolyol nonocclusives and mixtures thereof.

Some examples of more preferred nonocclusive moisturizers are squalane, sodium pyrrolidone carboxylic acid, D-panthenol, lactic acid, L-proline, guanidine, pyrrolidone, hydrolyzed protein and other collagen-derived proteins, aloe vera gel, acetamide MEA and lactamide MEA and mixtures thereof.

The compositions herein may also include one or more suspending agents in addition to the crystalline, hydroxy-containing stabilizer. Suitable suspending agents for use herein include any of several long chain acyl derivative materials or mixtures of such materials. Included are ethylene glycol esters of fatty acids having from about 16 to about 22 carbon atoms. Preferred are the ethylene glycol stearates, both mono and distearate, but particularly the distearate containing less than about 7% of the mono stearate. Other suspending agents found useful are alkanol amides of fatty acids, having from about 16 to 22 carbon atoms, preferably from about 16 to 18 carbon atoms. Preferred alkanol amides are stearic monoethanolamide, stearic diethanolamide, stearic monoisopropanolamide and stearic monoethanolamide stearate.

Still other suitable suspending agents are alkyl (C₁₆-C₂₂) dimethyl amine oxides such as stearyl dimethyl amino oxide and trihydroxystearin commercially available under the tradename Thixcin (RTM) from Rheox.

Compositions according to the present invention may also include an opacifier or pearlescing agent. Such materials may be included at a level of from about 0.01% to about 5%, preferably from about 0.2% to about 1.3% by weight.

Opacifiers/pearlescers suitable for inclusion in the compositions of the present invention include: titanium dioxide, TiO_2 ; EUPERLAN 810 (RTM); TEGO-PEARL (RTM); long chain (C_{16} - C_{22}) acyl derivatives such as glycol or polyethylene glycol esters of fatty acid having from about 16 to about 22 carbon atoms and up to 7 ethyleneoxy units; alkanolamides of fatty acids, having from about 16 to about 22 carbon atoms, preferably about 16 to 18 carbon atoms such as stearic monoethanolamide, stearic diethanolamide, stearic monoisopropanolamide and stearic monoethanolamide and alkyl (C_{16} - C_{22}) dimethyl amine oxides such as stearyl dimethyl amine oxide.

In preferred compositions the opacifier/pearlescer is present in the form of crystals. In highly preferred compositions the opacifier/pearlescer is a particulate polystyrene dispersion having a particle size of from about 0.05 microns to about 0.45 microns, preferably from about 0.17 microns to about 0.3 microns, such dispersions being preferred from the viewpoint of providing optimum rheology and shear-thinning behaviour. Highly preferred is styrene acrylate copolymer and OPACFIER 680 (RTM) commercially available from Morton International.

A number of additional optional materials can be added to the cleansing compositions each at a level of from about 0.1% to about 2% by weight. Such materials include proteins and polypeptides and derivatives thereof; water-soluble or solubilizable preservatives such as DMDM Hydantoin, Germall 115, methyl, ethyl, propyl and butyl esters of hydroxybenzoic acid, EDTA, Euxyl (RTM) K400, natural preservatives such as benzyl alcohol, potassium sorbate and bisababol; sodium benzoate and 2-phenoxyethanol; other moisturizing agents such as hyaluronic acid, chitin, and starch-grafted sodium polyacrylates such as Sanwet (RTM) IM-1000, IM-1500 and IM-2500 available from Celanese Superabsorbent Materials, Portsmouth, VA, USA and described in US-A-4,076,663; solvents; suitable anti-

bacterial agents such as Oxeco (phenoxy isopropanol), Trichlorocarbanilide (TCC) and Triclosan and; low temperature phase modifiers such as ammonium ion sources (e.g. NH_4Cl); viscosity control agents such as magnesium sulfate and other electrolytes; colouring agents; TiO_2 and TiO_2 -coated mica; perfumes and perfume solubilizers; and zeolites such as Valfour BV400 and derivatives thereof and $\text{Ca}^{2+}/\text{Mg}^{2+}$ sequestrants such as polycarboxylates, amino polycarboxylates, polyphosphonates, amino polyphosphonates, EDTA etc, water softening agents such as sodium citrate and insoluble particulates such as zinc stearate and fumed silica. Water is also present at a level preferably of from about 20% to about 99.89%, preferably from about 40% to about 90%, more preferably at least about 75% by weight of the compositions herein.

The pH of the compositions is preferably from about 3 to about 10, more preferably from about 5 to about 9, especially from about 5 to about 8 and most preferably from about 5 to 7.

The compositions of the present invention can be used for a variety of skin and hair care applications such as shower gels, body washes, hair shampoos, and the like.

The compositions of the present invention may be applied with the hand or preferably with a personal cleansing implement such as a puff. Suitable personal cleansing implements for use with the compositions of the present invention include those disclosed in the following patent documents which are incorporated herein by reference: US-A-5,144,744 to Campagnoli, issued September 8, 1992, US-A-3,343,196 to Barnhouse, WO95/26671 to The Procter & Gamble Company, WO95/00116 to The Procter & Gamble Company and WO95/26670 to The Procter & Gamble Company.

The compositions according to the present invention are illustrated by the following non-limiting examples.

	I/%	II/%	III/ %	IV/%	V/%	VI/%
Ammonium laureth-3 sulphate (Empicol EAC/TP) ¹	8.4	8.4	15	15	8.4	15
Ammonium Lauryl Sulphate (Empicol AL30) ¹	-	-	-	5	-	5
Na Lauroamphoacetate (Empigen CDL60P) ¹	3.6	3.6	10	-	3.6	2
Na Lauroyl Sarcosinate (Hamposyl L30) ²	0.5	0.5	-	-	0.5	-
Thixcin R ³	1.5	1.5	1.0	1.5	1.5	1.5
Lauric Acid	1.5	1.5	1.0	1.5	-	-
Polyalphaolefin (Puresyn 100) ⁴	8	0	6.0	4.0	6.0	0
Polyalphaolefin Puresyn 40) ⁴	0	10	0	0	0	2
Perfume	0.5	0.5	1.0	1.0	0.5	1.0
EDTA	0.11	0.11	0.11	0.11	0.11	0.11
Sodium Benzoate	0.25	0.25	0.25	0.25	0.25	0.25
DMDM Hydantoin	0.138	0.138	0.138	0.138	0.138	0.138
Dobanol 23 ⁵	0	0	0	0	1.5	1.5
Citric acid	0.7	0.7	1.5	0.4	0.7	0.4
Water	-----to 100----- -----					

1. Supplied by Albright & Wilson
2. Supplied by Hampshire Chemicals
3. Supplied by Rheox, Inc.
4. Supplied by Mobil Chemical Co.
5. Supplied by Shell Chemical Co.

Method of Manufacture

Compositions can be prepared by firstly making a premix of surfactants and a suspending agent. This is done by combining the surfactants, portion of the water, powder preservatives and the pH adjuster with mild agitation. This mixture is then heated up to about 90°C during which time, fatty alcohol/fatty acid and the Thixcin R are added with agitation.

The mixture is held at high temperatures for five minutes to one hour before being cooled at a controlled rate to approximately 30-40°C via a heat exchanger causing the suspending agent to crystallize out.

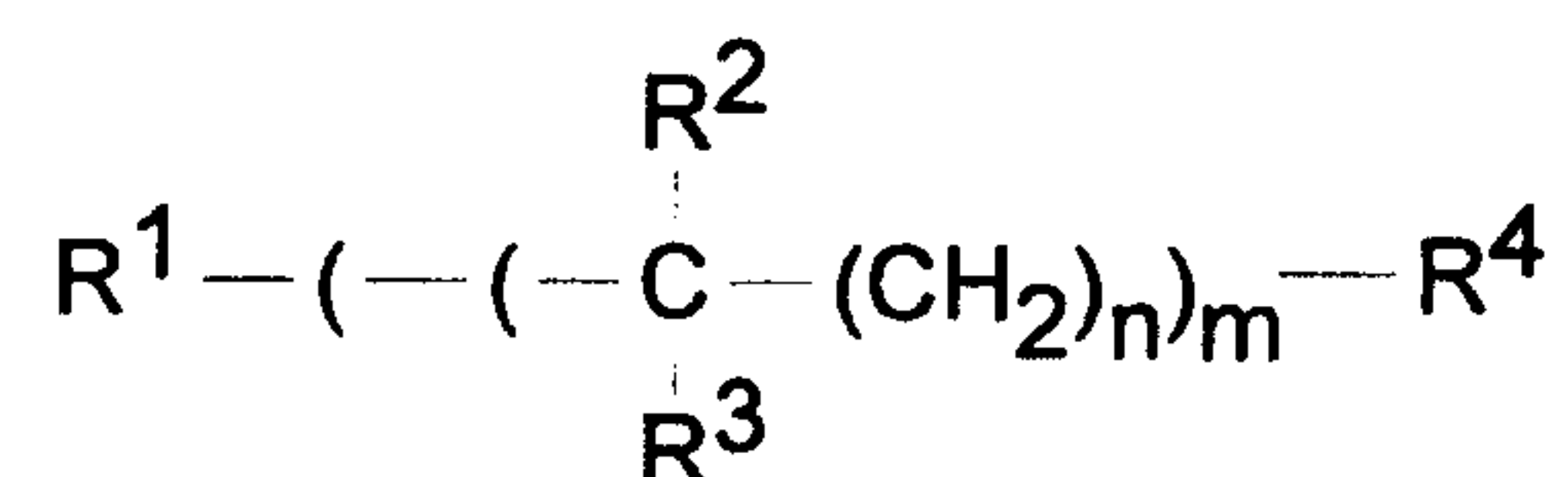
To this premix the remaining water is then added followed by the water-insoluble oil, remaining surfactant, liquid preservatives and perfume. This part of the process is done at room temperature using mild agitation to yield the preferred droplet size of 5 to 20 microns.

The products provide excellent rinse feel and mildness benefits together with excellent rheological attributes in storage, in dispensing and in-use, in combination with good efficacy benefits including skin conditioning, skin moisturising, good product stability, cleansing and lathering.

Claims:

1. A rinse-off liquid personal cleansing composition comprising:

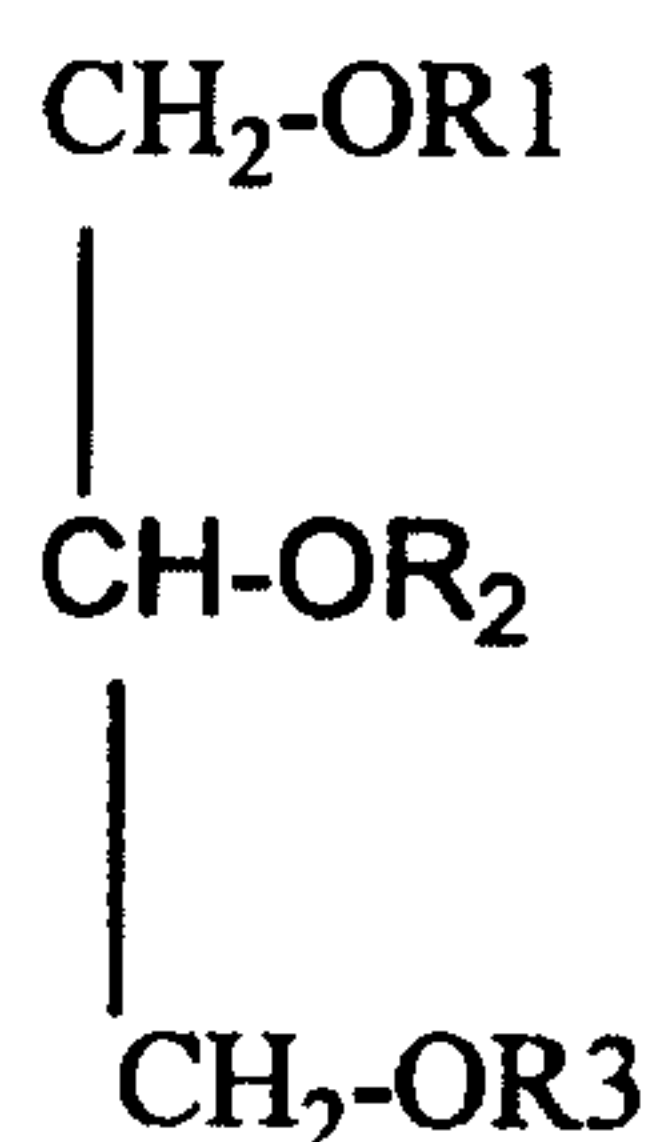
- (a) water,
- (b) from about 1% to about 60% by weight of a water-soluble surfactant,
- (c) a water-insoluble oil selected from highly branched polyalphaolefins having the following formula:



wherein R^1 is H or C_1 - C_{20} alkyl, R^4 is C_1 - C_{20} alkyl, R^2 is H or C_1 - C_{20} , and R^3 is C_1 - C_{20} preferably from C_5 - C_{20} , n is an integer from 0 to 3 and m is an integer of from 1 to 1000 and having a number average molecular weight of from about 1000 to about 25,000, and

- (d) a crystalline, hydroxy-containing stabilizer selected from

(i)



wherein

R_1 is $-(C=O)-R_4(COH)_xR_5(COH)_yR_6$

R_2 is R_1 or H

R_3 is R_1 or H

R4 is C0-20 alkyl
 R5 is C0-C20 alkyl
 R6 is C0-C20 alkyl
 $R4+R5+R6=C10-22$
 and wherein $1 \leq x+y \leq 4$

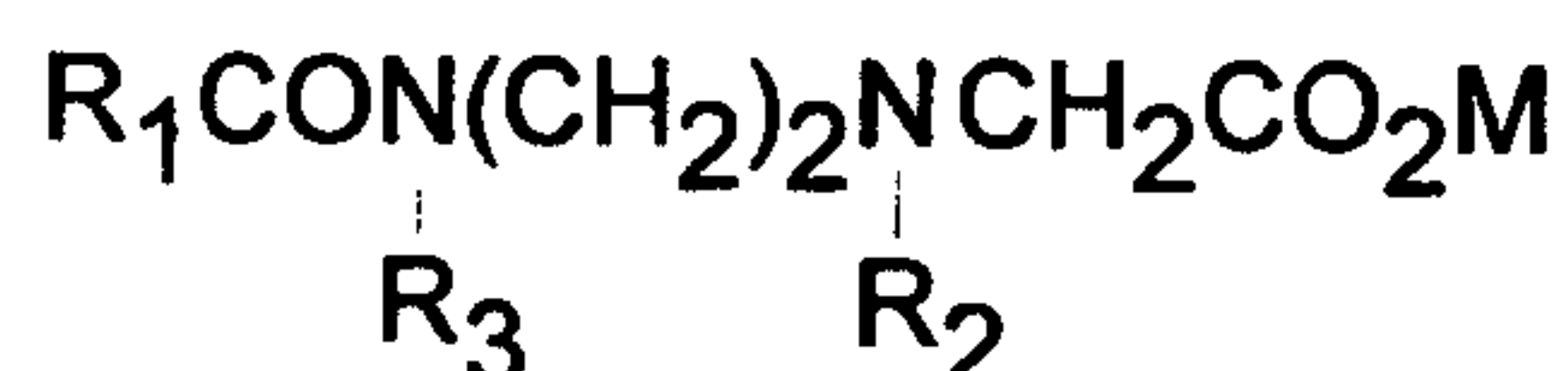
(ii) $R7-(C=O)-OM$

wherein R7 is $-R4(COH)_xR5(COH)_yR6$, M is Na^+ , K^+ ,
 or Mg^{2+} , or H,

and (iii) mixtures thereof.

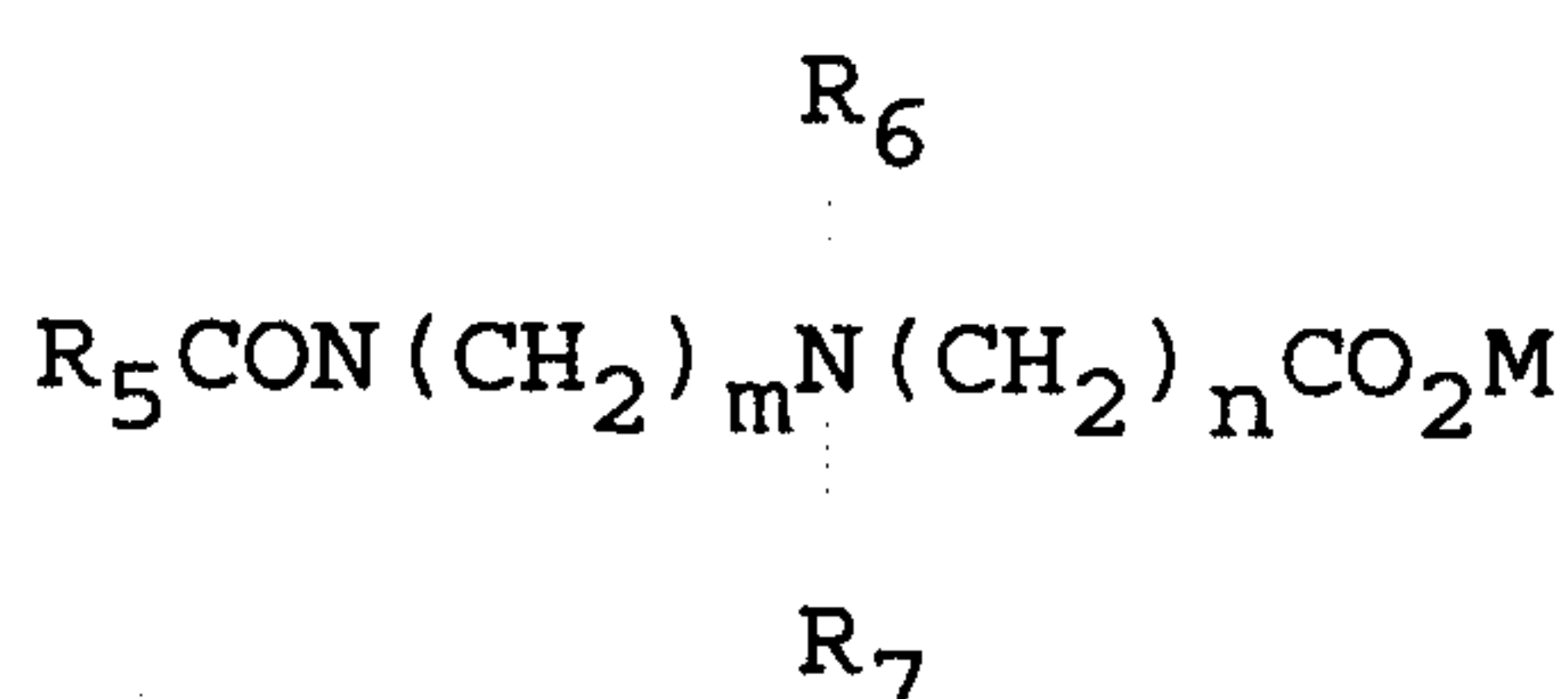
2. A personal cleansing composition according to Claim 1 comprising from about 0.1% to about 10% by weight of crystalline, hydroxyl-containing stabilizer.
3. A personal cleansing composition according to Claim 1 or 2 wherein the crystalline, hydroxy-containing stabilizer comprises tri-12-hydroxystearin.
4. A personal cleansing composition according to any of Claims 1 to 3 additionally comprising from 0.1% to 10% by weight of a C_8-C_{22} fatty acid or fatty alcohol or mixture thereof.
5. A personal cleansing composition according to any of Claims 1 to 4 wherein the water-insoluble oil has a number average molecular weight of from about 2500 to about 6000, preferably from about 2500 to about 4000.
6. A personal cleansing composition according to any of Claims 1 to 4 wherein the water-insoluble oil has a viscosity of from about 300cst to about 50,000cst, preferably from about 1000cst to about 12,000 cst, more preferably from about 1000cst to about 4000cst at 40°C using the ASTM D-445 method for measuring viscosity.

7. A personal cleansing composition according to any of Claims 1 to 6 comprising from about 0.1% to about 10%, preferably from about 1% to about 5% by weight of water-insoluble oil.
8. A personal cleansing composition according to any of Claims 1 to 7 wherein the water-soluble surfactant is selected from anionic surfactant, nonionic, zwitterionic and amphoteric surfactants and mixtures thereof.
9. A personal cleansing composition according to Claim 8 wherein the water-soluble anionic surfactant is selected from alkyl sulfates, ethoxylated alkyl sulfates, alkyl glyceryl ether sulfonates, alkyl ethoxy glyceryl ether sulfonates, acyl methyl taurates, fatty acyl glycinate, alkyl ethoxy carboxylates, N-acyl glutamates, acyl isethionates, alkyl sulfosuccinates, alkyl ethoxy sulfosuccinates, alpha-sulfonated fatty acids, their salts and/or their esters, alkyl phosphates esters, ethoxylated alkyl phosphate esters, acyl sarcosinates and fatty acid/protein condensates, acyl aspartates, alkoxy acyl amide carboxylates, (ethoxylated) alkanolamide sulfosuccinates, ethoxylated alkyl citrate sulfosuccinates, acyl ethylene diamine triacetates, acyl hydroxyethyl isethionates, acyl amide alkoxy sulfates, linear alkyl benzene sulfonates, paraffin sulfonates, alkyl alkoxy sulfates, and mixtures thereof.
10. A personal cleansing composition according to Claim 8 or 9 wherein the water-soluble anionic surfactant ethoxylated alkyl sulfate.
11. A personal cleansing composition according to any of Claims 1 to 10 wherein the composition is substantially soap-free.
12. A personal cleansing composition according to Claim 8 wherein the water-soluble amphoteric surfactant is selected from ammonium derivatives of formula [V]:



wherein R_1 is C5-C22 alkyl or alkenyl, R_2 is $\text{CH}_2\text{CH}_2\text{OH}$ or $\text{CH}_2\text{CO}_2\text{M}$, M is H, alkali metal, alkaline earth metal, ammonium or alkanolammonium and R_3 is $\text{CH}_2\text{CH}_2\text{OH}$ or H.

13. A personal cleansing composition according to Claim 8 wherein the zwitterionic surfactant is selected from alkyl betaines of the formula $R_5R_6R_7\text{N}^+(\text{CH}_2)_n\text{CO}_2\text{M}$ and amido betaines of formula (IX):



wherein R_5 is C5-C22 alkyl or alkenyl, R_6 and R_7 are independently C1-C3 alkyl, M is H, alkali metal, alkaline earth metal, ammonium or alkanolammonium, and n, m are each numbers from 1 to 4.

14. A composition according to any of Claims 1 to 13 additionally comprising from about 0.01% to about 5% by weight of cationic polymeric skin conditioning agent selected from cationic guar gums, cationic polysaccharides, cationic homopolymers and copolymers derived from acrylic and/or methacrylic acid, cationic cellulose resins, quaternized hydroxy ethyl cellulose ethers, cationic copolymers of dimethyldiallylammonium chloride and acrylamide and/or acrylic acid, cationic homopolymers of dimethyldiallylammonium chloride, copolymers of dimethyl aminoethylmethacrylate and acrylamide, acrylic acid/dimethyldiallylammonium chloride/acrylamide copolymers, quaternised vinyl pyrrolidone acrylate or methacrylate copolymers of amino alcohol, quaternized copolymers of vinyl pyrrolidone and dimethylaminoethylmethacrylamide, vinyl pyrrolidone/vinyl imidaolium methochloride copolymers and polyalkylene and ethoxypolyalkylene imines, quaternized silicones, terpolymers of acrylic acid, methacrylamido propyl trimethyl ammonium chloride and methyl acrylate, and mixtures thereof.

15. A personal cleansing composition according to any of Claims 1 to 14 wherein the water-insoluble oil has a number average particle diameter of from about 1 micron to about 500 microns, preferably from about 5 microns to about 200 microns, especially from about 5 microns to about 50 microns.