

Description

Technical Field

5 The present invention relates to liquid detergent compositions, preferably heavy-duty liquid detergents, containing an anionic synthetic surfactant and a builder system comprising a C₁₂-C₁₄ alkyl or alkenyl succinic acid or salt thereof (hereinafter referred to as a "succinate") and a C₁₂-C₁₄ fatty acid or salt thereof (hereinafter referred to as a "fatty acid") in a molar ratio (calculated on an acid basis) of succinate to fatty acid of from 0.8 to 2.4. Within this range, the succinate and fatty acid mixture surprisingly provides a minimum of sudsing in
10 otherwise high sudsing detergents containing a significant amount of anionic synthetic surfactant.

Background Art

15 British Patent 1,293,753, Evans et al, published October 25, 1972, discloses dicarboxylate builders, including alkyl and alkenyl succinates, Example 10 is a low-sudsing detergent containing 2% dodecyl benzene sulfonate, 6% of an 80:20 mixture of tallow:coconut soap, and 6% disodium hexadecane-1,2-dicarboxylate. This results in a molar ratio of dicarboxylate to C₁₂-C₁₄ fatty acid of about 2.7.

20 European Patent Application 28,850, van der Griend, published May 20, 1981, discloses liquid detergents containing nonionic surfactant, a small amount of C₁₀-C₁₅ alkylbenzene sulfonate, builder and C₇-C₁₂ alkyl or alkenyl succinate as a hydrotrope. Examples D-M contain 0-1% LAS, 5.5-6% nonenyl succinic anhydride and 1.2-3% coconut fatty acid. The lowest ratio of succinate to fatty acid present is about 1.7.

U.S. Patent 3,776,851, Cheng, issued December 4, 1973, discloses detergents containing 5-70% tetrahydroxysuccinic acid builders. Example 4 contains 20% tetrahydroxysuccinic acid and 1.8% 80:20 tallow:coconut soap as a suds suppressor.

25 U.S. Patent 3,707,511, Lamberti et al, issued December 26, 1972, discloses that C₁₀-C₁₆ alkyl or alkenyl succinates are useful as suds boosters and stabilizers for detergents, particularly those containing alkylaryl sulfonates. There are no examples of compositions containing succinate and fatty acid.

Summary of the Invention

30 The present invention relates to a liquid detergent composition comprising, by weight:
(a) from 10% to 50% of an anionic synthetic surfactant;
(b) from 2% to 25% of a C₁₂-C₁₄ alkyl or alkenyl succinic acid, or salt thereof; and
(c) from 1% to 15% of a C₁₂-C₁₄ fatty acid, or salt thereof;
35 the molar ratio of (b) to (c), on an acid basis, being from 0.8 to 2.4.

Detailed Description of the Invention

40 The detergent compositions of the present invention contain anionic synthetic surfactant and succinate and fatty acid builders in a molar ratio (calculated on an acid basis) of succinate to fatty acid of from 0.8 to 2.4, preferably from 0.9 to 1.8, more preferably from 1.0 to 1.4. Within these ratios, the succinate and fatty acid provide a minimum of suds in otherwise high sudsing detergents containing a significant amount (e.g., greater than 10% by weight) of anionic synthetic surfactant. This is particularly surprising given that one would have expected that sudsing would gradually increase with increasing levels of succinate and decrease with increasing
45 levels of fatty acid.

Anionic Synthetic Surfactant

50 The detergent compositions herein contain from 10% to 50%, preferably from 13% to 40%, more preferably from 16% to 30%, by weight, on an acid basis, of an anionic synthetic surfactant. Anionic synthetic surfactants are disclosed in U.S. Patent 4,285,841, Barrat et al, issued August 25, 1981, and in U.S. Patent 3,919,678, Laughlin et al, issued December 30, 1975.

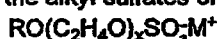
55 Useful anionic surfactants include the water-soluble salts, particularly the alkali metal, ammonium and alkylammonium (e.g., monoethanolammonium or triethanolammonium) salts, of organic sulfuric reaction products having in their molecular structure an alkyl group containing from 8 to 20 carbon atoms and a sulfonic acid or sulfuric acid ester group. (Included in the term "alkyl" is the alkyl portion of aryl groups.) Examples of this group of synthetic surfactants are the alkyl sulfates, especially those obtained by sulfating the higher alcohols (C₈-C₁₈ carbon atoms) such as those produced by reducing the glycerides of tallow or coconut oil;

and the alkylbenzene sulfonates in which the alkyl group contains from 9 to 15 carbon atoms, in straight chain or branched chain configuration, e.g., those of the type described in United States Patents 2,220,099 and 2,477,383.

5 Other anionic surfactants herein are the water-soluble salts of: paraffin sulfonates containing from 8 to 24 (preferably 12 to 18) carbon atoms; alkyl glyceryl ether sulfonates, especially those ethers of C_{8-18} alcohols (e.g., those derived from tallow and coconut oil); alkyl phenol ethylene oxide ether sulfates containing from 1 to 4 units of ethylene oxide per molecule and from 8 to 12 carbon atoms in the alkyl group; and alkyl ethylene oxide ether sulfates containing 1 to 4 units of ethylene oxide per molecule and from 10 to 20 carbon atoms in the alkyl group.

10 Other useful anionic surfactants herein include the water-soluble salts of esters of alpha-sulfonated fatty acids containing from 6 to 20 carbon atoms in the fatty acid group and from 1 to 10 carbon atoms in the ester group; water-soluble salts of 2-acyloxy-alkane-1-sulfonic acids containing from 2 to 9 carbon atoms in the acyl group and from 9 to 23 carbon atoms in the alkane moiety; water-soluble salts of olefin sulfonates containing from 12 to 24 carbon atoms; and beta-alkyloxy alkane sulfonates containing from 1 to 3 carbon atoms in the
15 alkyl group and from 8 to 20 carbon atoms in the alkane moiety.

Preferred anionic surfactants herein are the alkyl sulfates of the formula



wherein R is an alkyl chain having from 12 to 18 carbon atoms, saturated or unsaturated, M is a cation which makes the compound water-soluble, especially an alkali metal, ammonium or substituted ammonium cation, and x is from 0 to 4. Preferably, R is a $C_{12}-C_{16}$ alkyl or hydroxyalkyl group, especially a $C_{12}-C_{15}$ alkyl, and x is from 0 to 3.
20

Highly preferred anionic surfactants are the linear straight chain alkylbenzene sulfonates in which the average number of carbon atoms in the alkyl group is from 12 to 13, and the C_{12-15} alcohol sulfates containing from 0 to 3 ethylene oxide units, as described above. Also preferred are mixtures of these surfactants in a weight ratio of from 3:1 to 1:3, preferably from 2:1 to 1:2. These anionics form hardness, preferably magnesium, surfactants that are particularly effective at lowering interfacial tension and removing greasy/oily soils.
25

Succinate Builder

30 The detergent compositions herein also contain from 2% to 25%, preferably from 3% to 20%, more preferably from 5% to 15%, by weight of a succinate builder of the general formula $R-CH(COOH)CH_2(COOH)$, wherein R is $C_{12}-C_{14}$ alkyl or alkenyl group.

These succinate builders are preferably used in the form of their water-soluble salts, including the sodium, potassium, ammonium and alkanolammonium salts (e.g., mono-, di-, or tri-ethanolammonium).
35

Specific examples of succinate builders include: lauryl succinate, myristyl succinate, 2-dodecenyl succinate (preferred) and 2-tetradecenyl succinate.

Fatty Acid

40 The compositions of the present invention further contain from 1% to 15%, preferably from 2% to 10%, more preferably from 3% to 6%, by weight of a $C_{12}-C_{14}$ fatty acid, or salt thereof.

Suitable fatty acids can be obtained from natural sources such as plant or animal esters (e.g., palm kernel oil, palm oil and coconut oil) or synthetically prepared (e.g., via the oxidation of petroleum or by hydrogenation of carbon monoxide via the Fisher-Tropsch process). Examples of suitable fatty acids for use in the compositions of this invention include lauric, myristic, coconut and palm kernel fatty acid. Preferred are saturated coconut fatty acids, from 5:1 to 1:1 (preferably about 3:1) weight ratio mixtures of lauric and myristic acid, and palm kernel fatty acid.
45

The succinate and fatty acid builders herein are calcium-selective builders, which means they preferentially control calcium ion in the wash solution, rather than magnesium or other hardness ions. It is believed that these calcium-selective builders adequately control wash water hardness, preventing excessive interactions with the anionic surfactant herein and with soils, while allowing sufficient free hardness to complex some of the anionic surfactant to produce a hardness surfactant (such as magnesium linear alkylbenzene sulfonate) that is highly effective at removing greasy and oily soils. Such hardness-surfactants pack at the oil/water interface where they lower interfacial tension and enhance removal of greasy/oily soils.
50

55 The liquid detergent compositions herein can optionally contain any of the auxiliary ingredients known for use in detergent compositions. These include cosurfactants, cobuilders, neutralizing agents, buffering agents, phase regulants, solvents, hydrotropes, enzymes, enzyme stabilizing agents, polyacids, suds regulants, opaci-

fiers, antioxidants, bactericides, dyes, perfumes, and brighteners, such as those described in U.S. Patent 4,285,841, Barrat et al, issued August 25, 1981.

Preferred compositions herein include those described in U.S. Patent 4,561,998, Wertz et al, issued December 31, 1985, and U.S. Patent 4,507,219, Hughes, issued March 26, 1985.

5 The compositions herein preferably contain from 1% to 20%, more preferably from 3% to 15%, most preferably from 5% to 10%, by weight of an ethoxylated nonionic surfactant of the formula $R^1(OC_2H_4)_nOH$, wherein R^1 is a C_{10} - C_{16} alkyl group (preferred) or a C_8 - C_{12} alkyl phenyl group, n is from 3 to 9, and said nonionic surfactants has an HLB (hydrophile-lipophile balance) of from 9 to 13, preferably from 10 to 13. HLB is defined in detail in Nonionic Surfactants, by M.J. Schick, Marcel Dekker, Inc., 1966, pages 607-613. These ethoxylated
10 nonionic surfactants suspend hardness-surfactants in the wash water solution. They are used at a level high enough to prevent extensive precipitation of hardness-surfactants at the oil/water interface (which makes soil removal more difficult), but low enough to allow for the desired adsorption and packing at the interface.

The compositions herein can be formulated to have a pH of from 7.5 to 12, more preferably from 8 to 11. Certain preferred compositions herein are alkaline compositions that are particularly useful in combination with
15 peroxyacid bleach compositions, which generally have a pH of from 2 to 5 for best bleach stability. Such alkaline compositions have a pH of from 9 to 12, preferably from 9.5 to 11.5, more preferably from 10 to 11. They preferably contain from 2% to 15%, more preferably from 4% to 10%, by weight of monoethanolamine. The combination of such an alkaline composition and peroxyacid bleach preferably delivers a wash water pH of from 7.8 to 9, preferably from 7.9 to 8.5, which is desired for good bleaching performance, a minimum of fabric yellowing, and a minimum of bleach decomposition by the monoethanolamine.
20

The following examples illustrate the compositions of the present invention.

All parts, percentages and ratios used herein are by weight unless otherwise specified.

EXAMPLE I

25 The following composition was prepared by adding the components to a mixing tank in the order listed with continuous mixing.

	<u>Components</u>	<u>% Assay</u>	<u>Wt. % Product</u>	<u>Wt. % Stock</u>
5	Sodium C ₁₄₋₁₅ alkyl poly- ethoxylate (2.25) sulfate	48.8	11.3	23.2 ¹
	C ₁₃ linear alkylbenzene sulfonic acid	96.0	8.0	8.33
10	Sodium diethylenetriamine pentaacetate	41.0	0.35	0.7
	Propylene glycol	100.0	10.5	10.5
15	Monoethanolamine	100.0	5.0	3.0
	Brightener mix	100.0	-	6.21 ²
	C ₁₂₋₁₃ alcohol polyethoxy- late (6.5)*	100.0	9.0	7.0
20	Ethanol	92.0	10.48	7.3
	Potassium hydroxide	45.0	2.48	5.51
	Sodium hydroxide	50.0	2.94	5.88
25	Boric acid	100.0	1.25	1.25
	Water	-	-	5.65
	Sodium 2-dodecenyl succinate	80.0	5.53	6.9
30	C ₁₂₋₁₄ fatty acid	100.0	3.5	3.5
	Citric acid	50.0	4.0	8.0
	Calcium formate	10.0	0.12	1.2
	TEPA-E ₁₅₋₁₈ **	80.0	3.0	3.75
35	pH trim to 10.5	-	-	-
	Protease enzyme (2.0 AU/g)	100.0	1.16	1.16
40	Amylase enzyme (375 AM. U/g)	100.0	0.16	0.16
	Perfume	100.0	0.25	0.25
	Dye	100.0	0.08	0.08
45	Water	-	to 100%	3.25
	¹ Paste also contains 16.2% ethanol and 35% water			
	² Contains 32.2% monoethanolamine, 32.2% water, 32.2% C ₁₂₋₁₃ alcohol polyethoxylate (6.5)*, and 3.36% of brightener.			
50	* Alcohol and monoethoxylated alcohol removed.			
	** Tetraethylene pentamine ethoylated with 15-18 moles (avg.) of ethylene oxide at each hydrogen site.			

55

The above composition is preferably used in combination with the following liquid diperoxyacid bleach composition. The liquid bleach composition was prepared by high shear mixing of the components in an Eppenbach mixer while in an ice bath. The DPDA and water were added to the mixer before turning the mixer on.

The suds suppressor was added to minimize foaming while mixing and to minimize air entrapment in the finished composition. The other components were added in the order listed at the indicated times after turning on the mixer.

	<u>Grams</u>	<u>Wt. %</u>	<u>Time</u>
5			
	1,12-Diperoxydodecanedioic		
	acid (DPDA) (26.68%		
	active slurry [*])		
10	10,821.6	18.0	0
	Water (additional)		
	1896	11.8	0
	Suds suppressor		
	12.8	0.08	1 min.
	C ₁₃ linear alkylbenze		
15	sulfonic acid (96% active [*])		
	417.8	2.5	3 min.
	Sodium cumene sulfonate		
	(50% active [*])		
	463.4	1.45	3 min.
20	Dipicolinic acid		
	1.6	0.01	3 min.
	Sodium sulfate		
	641.6	4.0	1 hr. 25 min.
	Magnesium sulfate		
	1684.2	10.5	2 hr. 10 min.
25	Sodium hydroxide (50%		
	active [*])		
	104	0.32	3 hr. 10 min.
	[*] Balance primarily water.		

30 After 3 hr. 30 min., the pH of the composition was determined to be 3.20 at 20°C. After 4 hr. 10 min., the pH was again determined to be 3.20 at 20°C and the mixer was turned off. The composition was a stable suspension of the ingredients and had a viscosity of about 350 mPa·s at about 20°C. The DPDA had an average particle size of about 2-5 µm.

35 The above describes the preferred process for making the composition since high shear mixing of the components in an ice bath, their order of addition and the approximate times of addition have all been found to be important to obtain the desired physical stability.

40 The compositions are preferably used in a volume ratio of detergent composition to liquid bleach of about 5.5:1. The detergent composition is designed for a usage level of about 0.55 cups in a typical U.S. laundering process. This delivers a concentration of product in the wash water of about 0.22% by weight. Usage of about 0.1 cups (i.e., about 25 ml) of the liquid bleach delivers about 10 ppm of available oxygen to the wash water. The detergent composition and liquid bleach are preferably simultaneously codispersed from a dual compartment bottle at a volume ratio of detergent to bleach of about 5.5:1.

45 The mixture of the succinate and fatty acid builders in the above detergent composition is preferred because it causes less fabric yellowing and measuring cup residue than an all fatty acid formula when used with the above liquid bleach.

EXAMPLE II

50 Other compositions of the invention, which can be prepared by adding the components to a mixing tank in the order listed with continuous mixing, are as follows.

	<u>Components</u>	<u>A</u>	<u>B</u>
5	Sodium C ₁₄₋₁₅ alkyl poly- ethoxylate (2.25) sulfate	12.7	8.1
10	Sodium C ₁₃ linear alkylbenzene sulfonate	8.5	3.9
	Sodium diethylenetriamine pentaacetate	0.3	-
15	Propylene glycol	8.5	-
	Monoethanolamine	2.0	5.4
	C ₁₂₋₁₃ alcohol polyethoxy- late (6.5)*	5.0	-
20	C _{12-C16} alkyldimethylamine oxide		6.6
	Ethanol	4.0	
	Sodium toluene sulfonate		8.0
25	Sodium 2-dodecenyl succinate	11.0	15.0
	C ₁₂₋₁₄ fatty acid	7.0	7.0
	Citric acid	4.0	2.0
30	Calcium formate	0.12	-
	Sodium formate	0.87	-
	TEPA-E ₁₅₋₁₈ **	2.0	2.0
35	Protease enzyme (2.0 AU/g)	0.75	-
	Amylase enzyme (375 AM. U/g)	0.16	-
	Water and minors		Balance to 100%

Claims

1. A liquid detergent composition comprising, by weight:
 - (a) from 10% to 50% of an anionic synthetic surfactant;
 - (b) from 2% to 25% of a C₁₂-C₁₄ alkyl or alkenyl succinic acid, or salt thereof; and
 - (c) from 1% to 15% of a C₁₂-C₁₄ fatty acid, or salt thereof;
 the molar ratio of (b) to (c), on an acid basis, being from 0.8 to 2.4.
2. The composition of Claim 1 wherein the molar ratio of (b) to (c), on an acid basis, is from 1.0 to 1.4.
3. The composition of Claim 1 wherein the anionic surfactant comprises a C₁₂-C₁₃ linear alkylbenzene sulfonate, a C₁₂-C₁₅ alcohol sulfate containing from 0 to 3 ethylene oxide units, or mixtures thereof.
4. The composition of Claim 1 wherein (b) is sodium 2-dodecenyl succinate.
5. The composition of Claim 1 comprising from 16% to 30% of anionic synthetic surfactant, which comprises a C₁₂-C₁₃ linear alkylbenzene sulfonate, a C₁₂-C₁₅ alcohol sulfate containing from 0 to 3 ethylene oxide units, or mixtures thereof.
6. The composition of Claim 5 comprising from 5% to 15% of sodium 2-dodecenyl succinate and from 3% to 6% of C₁₂-C₁₄ fatty acid.
7. The composition of Claim 6 wherein the molar ratio of (b) to (c) is from 1.0 to 1.4.

	<u>Components</u>	<u>A</u>	<u>B</u>
5	Sodium C ₁₄₋₁₅ alkyl poly-ethoxylate (2.25) sulfate	12.7	8.1
10	Sodium C ₁₃ linear alkylbenzene sulfonate	8.5	3.9
	Sodium diethylenetriamine pentaacetate	0.3	-
15	Propylene glycol	8.5	-
	Monoethanolamine	2.0	5.4
	C ₁₂₋₁₃ alcohol polyethoxylate (6.5)*	5.0	-
20	C _{12-C16} alkyldimethylamine oxide		6.6
	Ethanol	4.0	
	Sodium toluene sulfonate		8.0
25	Sodium 2-dodecenyl succinate	11.0	15.0
	C ₁₂₋₁₄ fatty acid	7.0	7.0
	Citric acid	4.0	2.0
30	Calcium formate	0.12	-
	Sodium formate	0.87	-
	TEPA-E ₁₅₋₁₈ **	2.0	2.0
	Protease enzyme (2.0 AU/g)	0.75	-
35	Amylase enzyme (375 AM. U/g)	0.16	-
	Water and minors	Balance to 100%	

Claims

1. A liquid detergent composition comprising, by weight:
 - (a) from 10% to 50% of an anionic synthetic surfactant;
 - (b) from 2% to 25% of a C_{12-C14} alkyl or alkenyl succinic acid, or salt thereof; and
 - (c) from 1% to 15% of a C_{12-C14} fatty acid, or salt thereof;
 the molar ratio of (b) to (c), on an acid basis, being from 0.8 to 2.4.
2. The composition of Claim 1 wherein the molar ratio of (b) to (c), on an acid basis, is from 1.0 to 1.4.
3. The composition of Claim 1 wherein the anionic surfactant comprises a C_{12-C13} linear alkylbenzene sulfonate, a C_{12-C15} alcohol sulfate containing from 0 to 3 ethylene oxide units, or mixtures thereof.
4. The composition of Claim 1 wherein (b) is sodium 2-dodecenyl succinate.
5. The composition of Claim 1 comprising from 16% to 30% of anionic synthetic surfactant, which comprises a C_{12-C13} linear alkylbenzene sulfonate, a C_{12-C15} alcohol sulfate containing from 0 to 3 ethylene oxide units, or mixtures thereof.
6. The composition of Claim 5 comprising from 5% to 15% of sodium 2-dodecenyl succinate and from 3% to 6% of C_{12-C14} fatty acid.
7. The composition of Claim 6 wherein the molar ratio of (b) to (c) is from 1.0 to 1.4.





8. The composition of Claim 1 having a pH of from 9.5 to 11.5.
9. The composition of Claim 7 having a pH of from 10 to 11.
10. The composition of Claim 9 comprising from 4% to 10% of monoethanolamine.
11. The composition of Claim 10 further comprising from 5% to 10% of an ethoxylated nonionic surfactant of the formula $R^1(OC_2H_4)_nOH$, wherein R^1 is a C_{10} - C_{16} alkyl group, and n is from 3 to 9, said surfactant having an HLB of from 9 to 13.

Patentansprüche

10

1. Flüssige Detergenezusammensetzung, umfassend, bezogen auf das Gewicht:
 - (a) 10 % bis 50 % von einem anionischen synthetischen grenzflächenaktiven Mittel;
 - (b) 2 % bis 25 % von einer C_{12} - C_{14} -Alkyl- oder -Alkenylbernsteinsäure, oder einem Salz hiervon; und
 - (c) 1 % bis 15 % von einer C_{12} - C_{14} -Fettsäure oder einem Salz hiervon;
- 15 wobei das Molverhältnis von (b) zu (c) auf einer Säurebasis von 0,8 bis 2,4 beträgt.
2. Zusammensetzung nach Anspruch 1, worin das Molverhältnis von (b) zu (c) auf einer Säurebasis von 1,0 bis 1,4 beträgt.
3. Zusammensetzung nach Anspruch 1, worin das anionische grenzflächenaktive Mittel ein lineares C_{12} - C_{13} -Alkylbenzolsulfonat, ein C_{12} - C_{15} -Alkoholsulfat mit 0 bis 3 Ethylenoxideinheiten oder Gemische hiervon
- 20 umfaßt.
4. Zusammensetzung nach Anspruch 1, worin (b) Natrium-2-dodeceny succinat ist.
5. Zusammensetzung nach Anspruch 1, enthaltend 16 % bis 30 % von anionischem synthetischem grenzflächenaktivem Mittel, welches ein lineares C_{12} - C_{13} -Alkylbenzolsulfonat, ein C_{12} - C_{15} -Alkoholsulfat mit 0 bis 3 Ethylenoxideinheiten oder Gemische hiervon umfaßt.
- 25 6. Zusammensetzung nach Anspruch 5, umfassend 5 % bis 15 % Natrium-2-od-deceny succinat und 3 % bis 6 % C_{12} - C_{14} -Fettsäure.
7. Zusammensetzung nach Anspruch 6, worin das Molverhältnis von (b) zu (c) von 1,0 bis 1,4 beträgt.
8. Zusammensetzung nach Anspruch 1 mit einem pH-Wert von 9,5 bis 11,5.
9. Zusammensetzung nach Anspruch 7, mit einem pH-Wert von 10 bis 11.
- 30 10. Zusammensetzung nach Anspruch 9, umfassend 4 % bis 10 % Monoethanolamin.
11. Zusammensetzung nach Anspruch 10, welche ferner 5 % bis 10 % von einem ethoxylierten nichtionischen grenzflächenaktiven Mittel der Formel $R^1(OC_2H_4)_nOH$ Unfaßt, worin R^1 eine C_{10} - C_{16} -Alkylgruppe darstellt und n von 3 bis 9 beträgt, welches grenzflächenaktive Mittel einen HLB-Wert von 9 bis 13 besitzt.

35

Revendications

1. Composition détergente liquide comprenant, en poids :
 - (a) de 10 % à 50 % d'un tensio-actif synthétique anionique,
 - (b) de 2 % à 25 % d'un acide alkyl ou alcényl (en C_{12} à C_{14}) succinique, ou son sel, et
 - (c) de 1 % à 15 % d'un acide gras en C_{12} à C_{14} , ou son sel,
- 40 le rapport molaire de (b) à (c), sur base des acides, valant de 0,8 à 2,4.
2. Composition selon la revendication 1, dans laquelle le rapport molaire de (b) à (c), sur base des acides, vaut de 1,0 à 1,4.
3. Composition selon la revendication 1, dans laquelle le tensio-actif anionique comprend un alkyl (linéaire en C_{12} - C_{13}) benzène sulfonate, un alcool (en C_{12} - C_{15}) sulfate contenant de 0 à 3 motifs oxyde d'éthylène, ou leurs mélanges.
4. Composition selon la revendication 1, dans laquelle (b) est le 2-dodécényl succinate de sodium.
5. Composition selon la revendication 1, comprenant de 16 % à 30 % du tensio-actif synthétique anionique,
- 50 qui comprend un alkyl (linéaire en C_{12} - C_{13}) benzène sulfonate, un alcool (en C_{12} - C_{15}) sulfate contenant de 0 à 3 motifs oxyde d'éthylène, ou leurs mélanges.
6. Composition selon la revendication 5, comprenant de 5 % à 15 % de 2-dodécényl succinate de sodium et de 3 % à 6 % d'un acide gras en C_{12} à C_{14} .
7. Composition selon la revendication 6, dans laquelle le rapport molaire de (b) à (c) vaut de 1,0 à 1,4.
8. Composition selon la revendication 1, ayant un pH de 9,5 à 11,5.
9. Composition selon la revendication 7, ayant un pH de 10 à 11.
10. Composition selon la revendication 9, comprenant de 4 % à 10 % de monoéthanolamine.
11. Composition selon la revendication 10, comprenant en outre de 5 % à 10 % d'un tensio-actif non-ionique

éthoxylé de formule $R^1(OC_2H_4)_nOH$, dans laquelle R^1 représente un groupe alkyle en C_{10} à C_{18} , et n vaut de 3 à 9, ledit tensio-actif ayant un HLB (balance hydrophile-lipophile) de 9 à 13.

5

10

15

20

25

30

35

40

45

50

55

