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⑤④ **Detergent composition containing mixture of anionic sulfate and sulfonate surfactants.**

⑤⑦ Detergent compositions containing a surfactant system which consists essentially of a mixture of C₁₃ linear alkyl benzene sulfonate and the sulfate reaction product of a C₁₄₋₁₅ alcohol and about 1 mole of ethylene oxide per mole of alcohol. The pH of the compositions in wash is preferably from about 9.2 to about 10. Such compositions provides superior cleaning of body soil in cool water and when the hardness present is in excess of the capacity of detergent builders present.

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DETERGENT COMPOSITION CONTAINING MIXTURE OF
ANIONIC SULFATE AND SULFONATE SURFACTANTS

5 The instant invention relates to detergent compositions containing a particular mixture of anionic surfactants which provides superior cleaning of body soils.

There has been a continuing need for improving the performance of detergent compositions, especially these formulated with low and no levels of detergency builders or built with relatively ineffective detergency builders.

10 It has been known that alkyl polyethoxylate sulfates are relatively insensitive to the presence of hardness ions and that mixtures of those alkyl polyether sulfates with linear alkyl benzene sulfonates can give improved performance.

15 It is an object of this invention to improve the performance of detergent compositions utilizing a surfactant mixture consisting essentially of water soluble linear alkyl benzene sulfonates and sulfated reaction products of fatty alcohols and ethylene oxide.

20 The instant detergent compositions are characterized by containing from about 5% to about 50% of a surfactant mixture consisting essentially of:

- (a) a water soluble C_{13} average linear alkyl benzene sulfonate and
- 25 (b) a water soluble sulfated reaction product of one mole of an alcohol containing from about 14 to about 15 carbon atoms and about 1 mole of ethylene oxide per mole of fatty alcohol, the ratio of (b)

to (a) being from about 1:1 to about 5:1, preferably from about 2:1 to about 4:1. The remainder of the composition comprises normal detergent ingredients including detergency builders, detergent additives, filler, etc. The pH of the wash solution is preferably from about 9.2 to about 10, more preferably from about 9.7 to about 9.9.

Detailed Description of the Invention

The Alkyl Benzene Sulfonate

It has surprisingly been found that the linear alkyl benzene sulfonate of this invention must have an average of about 13 carbon atoms. Typically the range of chain lengths is from about 10 to about 16 with only very minor amounts that are longer or shorter. Similar alkyl benzene sulfonates containing an average of about 12 carbon atoms do not give the superior results obtained. The cation is normally sodium. However, in some circumstances, potassium, ammonium, mono-, ethanol ammonium, diethanol ammonium, triethanol ammonium, morpholinium, magnesium and calcium cations can be used. The term "linear", as used herein, includes minor amounts of branching.

The Sulfate of the Polyethoxylated Alcohol

The fatty alcohol utilized in forming this surfactant is essentially linear, but can contain some methyl branching. The alcohol is essentially saturated. The degree of ethoxylation is considered essential. For example, if the degree of ethoxylation is greater than about 2 then the performance of the composition containing the surfactant system is reduced unacceptably. The degree of ethoxylation will, of course, vary but should not be below about 1 nor above about 20, preferably from about .7 to about 1.5, most preferably about 1.1. The same cations that are used with the alkyl benzene sulfonate can be used with the sulfated alcohol polyethoxylate.

The amount of the surfactant mixture in the composition will normally vary from about 5% to about 50%, preferably from about 15% to about 20%, most preferably from about 16% to about 18% and even more preferably 16.6% to 17.5%. As set forth hereinbefore, the ratio of the sulfated alcohol

polyethoxylate to the alkyl benzene sulfonate should be from about 1:1 to about 5:1 and preferably from about 2:1 to about 4:1. If possible, one should operate at a ratio no higher than about 4:1 since higher ratios show no improvement and it is generally less costly to use as much as possible of the C₁₃ linear benzene sulfonate.

It has been found that the overall performance of the detergent composition requires the presence of both surfactants. The sulfated alcohol polyethoxylate is essential for good cool water washing performance and for good performance in underbuilt situations. However, it has been found that it is also required to have a reasonable amount of C₁₃ linear alkyl benzene sulfonate for optimum performance and for cleaning a larger range of soils. Neither surfactant alone can give the superior performance of the mixture even when used at a higher level equal to the mixture's total.

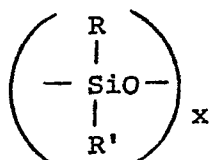
Additional Components

The compositions of the present invention may also contain additional ingredients generally found in laundry detergent compositions, at their conventional art-established levels.

The compositions of the present invention may contain up to about 15%, preferably up to about 5%, and most preferably from about 0.1% to 2%, of a suds suppressor component. Typical suds suppressors include long chain fatty acids, such as those described in U.S. Patent 2,954,347, issued September 27, 1960, to St. John, and combinations of certain nonionics therewith, as disclosed in U.S. Patent 2,954,348, issued September 27, 1960, to Schwoeppe, both disclosures being incorporated herein by reference. Other suds suppressor components useful in the compositions of the present invention include, but are not limited to, those described below.

Preferred silicone suds suppressing additives are described in U.S. Patent 3,933,672, issued January 20, 1976, Bartolotta et al, incorporated herein by reference. The silicone material can be represented by alkylated polysiloxane materials such as silica aerogels and xerogels and

hydrophobic silicas of various types. The silicone material can be described as a siloxane having the formula:



wherein x is from about 20 to about 2,000, and R and R' are
 5 each alkyl or aryl groups, especially methyl, ethyl, propyl, butyl and phenyl. The polydimethylsiloxanes (R and R' are methyl) having a molecular weight within the range of from about 200 to about 200,000, and higher, are all useful as
 10 suds controlling agents. Additional suitable silicone materials wherein the side chain groups R and R' are alkyl, aryl, or mixed alkyl and aryl hydrocarbyl groups exhibit useful suds controlling properties. Examples of the like ingredients include diethyl-, dipropyl-, dibutyl-, methyl-, ethyl-, phenylmethyl-polysiloxanes and the like. Additional
 15 useful silicone suds controlling agents can be represented by a mixture of an alkylated siloxane, as referred to hereinbefore, and solid silica. Such mixtures are prepared by affixing the silicone to the surface of the solid silica. A preferred silicone suds controlling agent is represented
 20 by a hydrophobic silanated (most preferably trimethylsilanated) silica, having a particle size in the range from about 10 millimicrons to 20 millimicrons and a specific surface area above about 50 m²/gm., intimately admixed with dimethyl silicone fluid, having a molecular weight in the
 25 range from about 500 to about 200,000, at a weight ratio of silicone to silanated silica of from about 19:1 to about 1:2. The silicone suds suppressing agent is advantageously releasably incorporated in a water-soluble or water-dispersible, substantially non-surface-active detergent-impermeable carrier.
 30

Particularly useful suds suppressors are the self-emulsifying silicone suds suppressors, described in German Patent Application DOS 26 46 057, incorporated herein by reference.

An example of such a compound is DB-544, commercially available from Dow Corning, which contains a siloxane/glycol copolymer together with solid silica and a siloxane resin.

5 Microcrystalline waxes having a melting point in the range from 35°C-115°C and a saponification value of less than 100 represent additional examples of a preferred suds regulating component for use in the subject compositions, and are described in detail in U.S. Patent 4,056,481, Tate,
10 issued November 1, 1977, incorporated herein by reference. The microcrystalline waxes are substantially water-insoluble, but are water-dispersible in the presence of organic surfactants. Preferred microcrystalline waxes have a melting point from about 65°C to 100°C, a molecular weight
15 in the range from 400-1,000; and a penetration value of at least 6, measured at 77°F by ASTM-D1321. Suitable examples of the above waxes include: microcrystalline and oxidized microcrystalline petrolatum waxes; Fischer-Tropsch and oxidized Fischer-Tropsch waxes; ozokerite; ceresin; montan
20 wax; beeswax; candelilla; and carnauba wax.

 Alkyl phosphate esters represent an additional preferred suds suppressant for use herein. These preferred phosphate esters are predominantly monostearyl phosphate which, in addition thereto, can contain di- and tristearyl
25 phosphates; and monooleyl phosphates, which can contain di- and trioleyl phosphates.

 The alkyl phosphate esters frequently contain some trialkyl phosphate. Accordingly, a preferred phosphate ester can contain, in addition to the monoalkyl ester, e.g.
30 monostearyl phosphate, up to 50 mole percent of dialkyl phosphate and up to about 5 mole percent of trialkyl phosphate.

 The detergent compositions of the present invention may also include from about 1 to about 95%, preferably less than
35 about 60%, although levels of from about 20% to about 75%

are common, of electrolyte components, such as conventional detergency builders, especially alkaline, polyvalent anionic builder salts. The alkaline salts primarily serve to maintain pH of the cleaning solution in the range of from about 7 to about 12, preferably from about 8 to about 11 and to provide a source of ionic strength.

It has surprisingly been found that superior products should have a pH in the wash solution (i.e., at a concentration of about 0.12% by weight of the total detergent composition in water) of from about 9 to about 10, preferably from about 9.7 to about 9.9. Above 10, performance is lower and, in the view of some people, the risks from alkalinity increase substantially. At lower pH's, performance drops off rapidly.

Suitable detergent builder salts useful herein can be of the polyvalent inorganic or polyvalent organic type, or mixtures of these varieties. Nonlimiting examples of suitable water-soluble, inorganic alkaline detergent builder salts include: alkali metal carbonates, borates, phosphates, polyphosphates, bicarbonates, silicates, and sulfates. Specific examples of such salts include sodium and potassium tetraborates, perborates, bicarbonates, carbonates, tripolyphosphates, orthophosphates, pyrophosphates and hexametaphosphates.

Examples of suitable organic alkaline detergency builder salts include: (1) water-soluble aminopolyacetates, for example, sodium and potassium ethylenediamine tetraacetate, nitrilotriacetate, and N-(2-hydroxyethyl)nitrilotriacetates;

(2) water-soluble salts of phytic acid, for example, sodium and potassium phytates; and

(3) water-soluble polyphosphonates, including sodium, potassium, and lithium salts of ethane-1-hydroxy-1,1-diphosphonic acid; sodium, potassium, and lithium salts of ethylene diphosphonic acid; and the like.

Additional organic builder salts useful herein include the polycarboxylate materials described in U.S. Patent 3,364,103, incorporated herein by reference, including the water-soluble alkali salts of mellitic acid. The water-

soluble salts of polycarboxylate polymers and copolymers, such as those described in U.S. Patent 3,308,067, incorporated herein by reference, and polyacetals are also suitable as builders herein.

5 A further class of detergency builder materials useful in the present invention are insoluble sodium aluminosilicates, particularly those described in Belgium Patent 814,874, issued November 12, 1974, incorporated herein by reference. This patent discloses and claims detergent
10 compositions containing sodium aluminosilicates having the formula $\text{Na}_z(\text{AlO}_2)_z(\text{SiO}_2)_y \cdot \text{XH}_2\text{O}$, wherein z and y are integers equal to at least 6, the molar ratio of z to y is in the range of from 1.0:1 to about 0.5:1, and X is an integer from about 15 to about 264, said aluminosilicates having a
15 calcium ion exchange capacity of at least 200 milligrams equivalent/gram and a calcium ion exchange rate of at least about 2 grains/ gallon/minute/ gram. A preferred material is $\text{Na}_{12}(\text{SiO}_2 \cdot \text{AlO}_2)_{12} \cdot 27\text{H}_2\text{O}$.

20 Mixtures of organic and/or inorganic builders may be used herein. One such mixture of builders is disclosed in Canadian Patent 755,038 and consists of a ternary mixture of sodium tripolyphosphate, trisodium nitrilotriacetate, and trisodium ethane-1-hydroxy-1,1-diphosphonate.

25 Other preferred builder materials which may be used in the compositions of the present invention include alkali metal carboxymethyl tartronates, commercially available at about 76% active together with about 7% ditartronate, about 3% diglycolate, about 6% sodium carbonate, and about 8% water; and anhydrous sodium carboxymethyl succinate, com-
30 mercially available at about 76% active together with about 22.6% water, and a mixture of other organic materials, such as carbonates.

35 In addition to the essential surfactant mixture discussed above, the detergent compositions of the present invention may additionally contain up to about 30%, preferably from about 1 to about 10%, of other anionic surfactants, zwitterionic surfactants, or mixtures of such surfactants. Particularly preferred compositions are those

which do not contain other surfactants in an amount which exceeds about 25 molar percent of the surfactant mixture. Surfactants of these types useful in the compositions of the present invention are listed in U.S. Patent 3,717,630, Booth, issued February 20, 1973, and U.S. Patent 3,332,880, Kessler et al, issued July 27, 1967, both of which are incorporated herein by reference. Specific nonlimiting examples of surfactants suitable for use in the instant compositions are as follows:

10 Water-soluble salts of the higher fatty acids, i.e., "soaps", are useful as an anionic surfactant herein. This class of surfactants includes ordinary alkali metal soaps such as sodium, potassium, ammonium, and alkanolammonium salts of higher fatty acids containing from about 8 to about 15 24 carbon atoms and preferably from about 10 to about 20 carbon atoms. Soaps can be made by direct saponification of fats and oils or by the neutralization of free fatty acids. Particularly useful are the sodium and potassium salts of the mixtures of fatty acids derived from coconut oil and 20 tallow, i.e., sodium or potassium tallow and coconut soaps.

Another class of anionic surfactant includes water-soluble salts, particularly the alkali metal, ammonium and alkanolammonium salts, of organic sulfuric reaction products having in their molecular structure an alkyl group containing from about 8 to about 22 carbon atoms and a sulfonic acid or sulfuric acid ester group. (Included in the term "alkyl" is the alkyl portion of acyl groups.) Examples of this group of synthetic surfactants which can be used in the present detergent compositions are the sodium and potassium 25 alkyl sulfates, especially those obtained by sulfating the higher alcohols (C_8 - C_{18} carbon atoms) produced by reducing the glycerides of tallow or coconut oil; and sodium and potassium alkylbenzene sulfonates, in which the alkyl group contains from about 9 to about 15 carbon atoms in straight 30 chain or branched chain configurations, e.g., those of the type described in U.S. Patents 2,220,099 and 2,477,383, incorporated herein by reference.

Other anionic surfactant compounds useful herein include the sodium alkyl glyceryl ether sulfonates,

especially those ethers or higher alcohols derived from tallow and coconut oil; sodium coconut oil fatty acid monoglyceride sulfonates and sulfates; and sodium or potassium salts of alkyl phenol polyethylene oxide ether sulfate containing about 1 to about 10 units of ethylene oxide per molecule and wherein the alkyl groups contain from about 8 to about 12 carbon atoms.

The alkaline earth metal salts of synthetic anionic surfactants are useful in the present invention. In particular, the magnesium salts of linear alkylbenzene sulfonates, in which the alkyl group contains from 9 to about 15, especially 11 to 13, carbon atoms, are useful.

Other useful anionic surfactants herein include the water-soluble salts of esters of alpha-sulfonated fatty acids containing from about 6 to 20 carbon atoms in the ester group; water-soluble salts of 2-acyloxy-alkane-1-sulfonic acids containing from about 2 to 9 carbon atoms in the acyl group and from about 9 to about 23 carbon atoms in the alkane moiety; alkyl ether sulfates containing from about 10 to 20 carbon atoms in the alkyl group and from about 1 to 30 moles of ethylene oxide; water-soluble salts of olefin sulfonates containing from about 12 to 24 carbon atoms; and beta-alkyloxy alkane sulfonates containing from about 1 to 3 carbon atoms in the alkyl group and from about 8 to 20 carbon atoms in the alkane moiety.

Preferred water-soluble anionic organic surfactants for use herein include linear chain alkylbenzene sulfonates containing from about 10 to 16 carbon atoms in the alkyl group; alkyl sulfates containing from about 10 to 20 carbon atoms; the coconut range alkyl glyceryl sulfonates; and alkyl ether sulfates wherein the alkyl moiety contains from about 10 to 20 carbon atoms and wherein the average degree of ethoxylation varies between about 1 and 6.

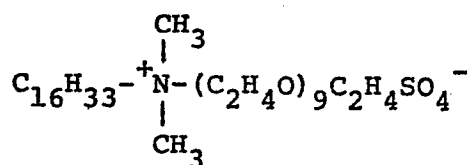
Specific preferred anionic surfactants which may be used herein include: sodium linear C₁₀-C₁₂ alkylbenzene sulfonate; triethanolamine C₁₀-C₁₂ alkylbenzene

sulfonate; sodium tallow alkyl sulfate; sodium coconut alkyl glyceryl ether sulfonate; and the sodium salt of a sulfated condensation product of C₁₄-C₁₈ alcohol with from about 1 to about 10 moles of ethylene oxide.

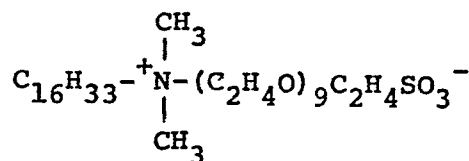
5 It is to be recognized that any of the foregoing anionic surfactants can either be used separately or in mixtures.

Zwitterionic surfactants include derivatives of aliphatic quaternary ammonium, phosphonium, and sulfonium
10 compounds in which the aliphatic moieties can be straight or branch chain, wherein one of the aliphatic substituents contains from about 8 to 18 carbon atoms and one contains anionic water-solubilizing group. Particularly preferred zwitterionic materials are the ethoxylated ammonium sul-
15 fonates and sulfates disclosed in U.S. Patent 3,925,262, Laughlin et al, issued December 9, 1975; and U.S. Patent 3,929,678, Laughlin et al, issued December 30, 1975; all of which are incorporated herein by reference. The inclusion of these surfactants in the compositions supplement the
20 excellent greasy and oily soil removal performance with outstanding clay soil removal performance.

Particularly preferred ethoxylated zwitterionic surfactants have the formulae :

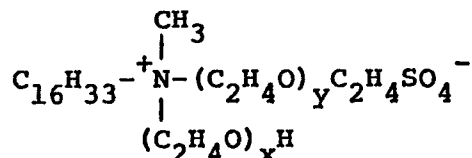


and



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The above compounds which contain 8 moles of ethylene oxide are also preferred. Additional preferred zwitterionic surfactants include those having the formula



5 wherein the sum of $x + y$ is equal to about 15.

Other compatible adjunct components which may be included in the compositions of the present invention, in their conventional art-established levels of use, include bleaching agents, bleach activators, soil suspending agents, 10 corrosion inhibitors, dyes, fillers, optical brighteners, germicides, pH adjusting agents, enzymes, enzyme stabilizing agents, perfumes, fabric softening components, static control agents, and the like. The fabric conditioning components of U.S. Patent 3,892,681, e.g., insoluble starch are 15 especially desirable additives, said patent being incorporated herein by reference. Buffers may also be added to control the pH of the compositions, with low molecular weight amino acids, particularly glycine, being preferred where the composition is in the form of a clear liquid. The 20 compositions of the present invention may additionally contain monoethanolamine, diethanolamine, or triethanolamine components in amounts up to about 30%, preferably from about 5 to about 20%. These components are useful as alkalinity sources and in formulating clear homogeneous liquid products. 25 The balance can be water, inert ingredients such as clay and insoluble salts, or electrolytes such as Na_2SO_4 , NaCl and the builder electrolytes disclosed hereinbefore.

30 Compositions of the present invention may be manufactured and used in a variety of physical forms, such as solid, powder, granular, paste, or liquid.

All parts, percentages and ratios are by weight unless otherwise indicated.

The following example illustrates the invention.

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Best Mode Of Carrying Out InventionCOMPARATIVE EXAMPLE I

		% By Weight			
		A	B	C	D
5	Sodium C ₁₂ alkylbenzene sulfonate	-	-	4.25	-
	Sodium C ₁₃ alkylbenzene sulfonate	4.25	4.25	-	16.8
	Sodium C ₁₄₋₁₅ alkyl polyethoxylate (1:1) sulfate	12.75	-	12.75	-
10	Sodium C ₁₄₋₁₅ alkyl polyethoxylate (2.3) sulfate	-	12.75	-	-
	Coconut fatty alcohol polyethoxylate (6)	0.5	0.5	0.5	0.5
	Sodium tripolyphosphate	32.8	32.8	32.8	32.8
15	Sodium silicate (1.6 r)	6.0	6.0	6.0	6.0
	Sodium toluene sulfonate	-	-	-	1.0
	Sodium sulfate	32.6	32.6	32.6	32.6
20	Antiredeposition agents, perfume, brighteners, colorants, etc.	Balance	Balance	Balance	Balance

The above products were tested under the indicated conditions of temperature and hardness (3:1 Ca:Mg) in a multiple wash and use cycles as follows to obtain the indicated scores.

25 This test procedure involves repeated cycles of soiling and washing. Fabric swatches are rubbed on the face and neck of the panelists. These are washed, graded and returned to panelists for re-soiling. 1400 ppm concentration of product was used. A grading scale of 0-4 was used with 0 =
30 no difference and 4= I know there is a difference, and it's big.

The fabrics are poly cotton which have been soiled by rubbing them against necks and cheeks.

	50°F/2 gr	50°F/9 gr	70°F/2 gr	70°F/9 gr
35 Composition A	+0.25	+0.89	+0.44	+0.23
Composition B	-0.37	-0.29	-0.80	-0.47
Composition C	+0.04	-0.84	+0.50	+0.56
Composition D	+0.10	+0.24	-0.14	-0.32
(LSD .05)	(1.08)	(1.54)	(0.89)	(0.65)

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	<u>50°F/2 gr</u>	<u>50°F/9 gr</u>	<u>70°F/2 gr</u>	<u>70°F/9 gr</u>
Composition A	+0.53	+0.06	-0.04	+0.66
Composition B	-0.44	+0.49	+0.20	-0.20
Composition C	+0.05	+0.21	-0.03	+0.13
Composition D	-0.14	-0.75	-0.15	-0.59
(LSD .05)	(0.98)	(1.03)	(1.11)	(0.78)

In two similar tests A and D were compared with two commercial products which are not relevant to the invention, under more stressed conditions, i.e., 1200 ppm, 9 gr. and 70°F. and 100°F. respectively. The normalized scores of A vs. D are:

	<u>1st test</u>		<u>2nd test</u>	
	<u>70°F.</u>	<u>100°F.</u>	<u>70°F.</u>	<u>100°F.</u>
Composition A	+0.79	+ 2.22	+0.65	+2.32
(LSD .05)	(1.11)	(1.87)	(1.47)	(1.68)

When, in the above composition, the following materials are substituted for the sodium tripolyphosphate and/or substantially equivalent results are obtained in that the surfactant mixture outperforms similar mixtures and/or the individual surfactant components in underbuilt situations and cool water; sodium; potassium; ammonium; mono-, di- and triethanolammonium carbonates; bicarbonates; sulfates; chlorides; pyrophosphates; orthophosphates; hexametaphosphates; nitrilotriacetates; ethylenediamine tetraacetates; citrates; borates; perborates; percarbonates; carboxy methyl oxysuccinates; carboxy methyl tartronates; and hydrates Zeolites A, X or P having average diameters of from about 0.1 to about 10 μ , and mixtures thereof in e.g., 1:1 ratios.

COMPARATIVE EXAMPLE II

Compositions A and D were prepared and adjusted with HCl and NaOH to give wash solution pH's of 9.4 and 9.8. The test results at 100°F. and 9 gr. according to the test of Example I were as follows:

	<u>pH</u>	<u>Score</u>	<u>Surfactant/ Effect</u>	<u>Alkalinity Effect</u>
A	9.4	+ .50		+ .77
			+1.67	
D	9.4	-1.17		
A	9.8	+1.27		
			+1.87	
D	9.8	- .60		+ .57

The magnitudes of these differences were totally unexpected in view of the results in Example I where pH was not controlled so precisely. Care must be taken to choose surfactant and pH for optimum results.

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CLAIMS:

1. A detergent composition containing from about 5% to about 50% of a surfactant system consisting essentially of:

- (A) a water soluble linear alkyl benzene sulfonate wherein said alkyl group averages about 13 carbon atoms; and
- (B) a water soluble salt of the sulfated reaction product between one mole of fatty alcohol containing an average of from about 14 to about 15 carbon atoms with from about one mole to two moles of ethylene oxide, the ratio of (B) to (A) being from about 1:1 to about 5:1.

2. The detergent composition of Claim 1 containing from about 1% to about 95% of detergent ingredients selected from the group consisting of: water soluble

- (A) carbonates,
- (B) bicarbonates,
- (C) sulfates,
- (D) chlorides,
- (E) tripolyphosphates,
- (F) orthophosphates,
- (G) pyrophosphates,
- (H) glassy phosphates,
- (I) nitrilotriacetates,
- (J) ethylenediaminetetraacetates,
- (K) citrates,
- (L) borates,
- (M) perborates,
- (N) percarbonates,
- (O) polyacetals
- (P) carboxy methyl oxysuccinates, and
- (Q) carboxy methyl tartronates, water insoluble sodium aluminosilicate, zeolites, water, and mixtures thereof.

3. The detergent composition of Claim 2 wherein the pH of a 0.12% solution in water is from about 9 to about 10.

4. The detergent composition of Claim 3 wherein the cations are selected from the group consisting of sodium; potassium; ammonium; mono-, di- or triethanolammonium; morpholinium; magnesium and calcium ions and mixtures thereof.
5. The detergent composition of Claim 3 wherein the cations are essentially sodium cations.
6. The detergent composition of Claim 3 wherein the ratio of (B) to (A) is from about 2:1 to about 4:1.
7. The detergent compositions of Claim 3 wherein the ratio of (B) to (A) is about 3:1.
8. The detergent composition of Claim 3 wherein the pH is from about 9.7 to about 9.9.
9. The detergent composition of Claim 1 containing from about 15% to about 22% of said surfactant system.
10. The detergent composition of Claim 2 containing no more than about 60% of said detergent ingredients.
11. The detergent composition of Claim 1 wherein the degree of ethoxylation of (B) is from about 0.7 to about 1.5.

0008141



European Patent
Office

EUROPEAN SEARCH REPORT

Application number

EP 79 200 420.2

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	DE - A - 1 959 652 (HENKEL) * claims 1 to 3, page 2, lines 3 to 18 *	1	C 11 D 1/12 C 11 D 1/68 C 11 D 1/83 C 11 D 3/065
X	DE - A - 2 320 527 (UNILEVER) * claims 1, 3 to 5; page 5, paragraph 4 to page 6, paragraph 1 *	1,2,4, 6,7	
X	DE - A1 - 2 628 976 (PROCTER & GAMBLE) * claims 1, 5, 11 to 13 *	1,6,7	TECHNICAL FIELDS SEARCHED (Int. Cl.)
X	AT - B - 340 553 (UNILEVER) * claim 1 *	1	C 11 D 1/00 C 11 D 3/00
A	DE - A1-2 616 404 (COLGATE-PALMOLIVE) *complete document *		
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family, corresponding document
X The present search report has been drawn up for all claims Place of search: Berlin Date of completion of the search: 05-11-1979 Examiner: SCHULTZE			