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(54) **Liquid dishwashing composition.**

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EP-A- 0 250 181
EP-A- 0 280 143
EP-A- 0 341 071
EP-A- 0 364 744

J. PALICKA '2nd World Surfactants Congress proceedings , vol. III' 27 May 1988 , CESIO AND ASPA , PARIS

(73) Proprietor: **Akzo Nobel Surface Chemistry Aktiebolag**

S-444 85 Stenungsund (SE)

(72) Inventor: **Palicka, Jadwiga**
Ekbackevägen 26
S-181 46 Lidingö (SE)

(74) Representative: **Andersson, Rolf**
Akzo Nobel Surface Chemistry AB
S-444 85 Stenungsund (SE)

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EP 0 508 507 B1

Description

The present invention relates to liquid dishwashing compositions and more particularly to such compositions which contain an anionic tenside, a combination of specific amphoteric surface active compounds and an alkyl polyglycoside.

The most common commercial liquid dishwashing compositions are primarily intended for hand dishwashing and are as a rule aqueous solutions containing anionic tensides, such as alkyl sulfonates and alkyl ether sulfates, as essential component. These dishwashing agents are entirely satisfactory with regard to cleaning effect, foam forming effect and foam stability. However, the dishwashing compositions based on this type of anionic surface active agents are not satisfactory with regard to mildness to skin, since they have a certain irritating and allergy causing effect.

An article, J Palicka: 2nd World Surfactant Congress proceedings, Vol. III, 27 May 1988, Cesio and Aspa, Paris, page 449-page 475, table 8, discloses a liquid dishwashing composition comparising 15% of an anionic surfactant (lauryl ether sulphate), 15% of an tallowamphopolycarboxyglycinate (Ampholak 7TX), 15% of a cocoamphocarboxyglycinate (Ampholak XCO-30), 1% of cocodiethanolamide and 3% of alcohol ethoxylates.

In the last few years nonionic alkyl polyglycosides have become of commercial interest for use in dishwashing formulations and other cleaning formulations These non-ionic surface active compounds, which are products based on natural raw materials, are advantageous for use in dishwashing and other cleaning compositions in that they are mild to the skin, have high biodegradability and good compatibility with other types of surfactants. Alkyl polyglycosides are per se well-known compounds and extensively disclosed. Their use as surfactants in combination with other types of surfactants is also well-known.

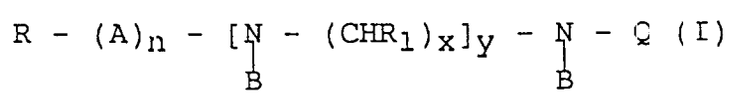
EP-A-0341071 discloses detergent compositions which are particularly useful for manual dishwashing and which contain an alkyl polyglycoside surfactant, an anionic surfactant, a surface active betaine and/or amine oxide.

Other publications are EP-A-250 181 and EP-A-364 744. The former discloses among other things in Example 9 a liquid shampoo composition comprising 2.7% of an anionic surfactant, 1.4% of an alkyl glycoside and a combination of a quaternary cocoamphocarboxyglycinate and 35% of a cocoamidopropyl-betaine. Thus, this composition contains two different amphoteric compounds with quaternary ammonium ions. The above mentioned EP-A-364 744 relates to a detergent composition containing alkyl glycoside, dicarboxylic compound which could be either amphoteric or anionic.

According to the present invention it has been found that surprisingly good dishwashing compositions are obtained when anionic tensides are used together with an alkyl polyglycoside and together with a combination of certain amphoteric compounds. Liquid dishwashing compositions containing anionic surface active agents, alkyl polyglycoside and the combination of specific amphoteric compounds have extremely good mildness to skin and good foaming properties and they further give a low biological load and are more efficient than a dishwashing composition based on anionic tenside, an alkyl polyglycoside and an amphoteric alkyl betaine surfactant.

The present invention thus relates to a dishwashing composition as further defined in the appended claims. Dishwashing compositions according to the present invention are particularly suitable for manual washing, of glass, china, kitchen utensils etc, thanks to their mildness.

In the dishwashing compositions of the present invention a combination of two types of amphoteric compounds is used and they are in the following designated as type a) and type b). The amphoteric surface active compounds of type a) can be characterized by the general formula (I)



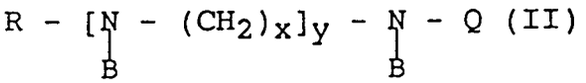
(I)

wherein R is a hydrocarbon group having from 7 to 22 carbon atoms, n is 0 or 1, A is a carbonyl group [C-(O)], a group $(OCH_2CH_2)_z$ or $(OCH_2CH_2CH_2)_z$ wherein z is an integer of from 1 to 5, R_1 is hydrogen or a lower alkyl group x is 2 or 3, y is an integer of 0 to 4, Q is the group $-R_2COOM$ wherein R_2 is an alkylene group having from 1 to 6 carbon atoms and M is hydrogen or an ion from the groups alkali metals, alkaline earth metals, ammonium and substituted ammonium and B is hydrogen or a group Q as defined.

Amphoteric compounds of the above type are per se known and used in cleaning compositions and shampoo compositions. They are for example described in the European patent applications 160507, 162600 and 214868. In the amphoteric surface active compounds of the above given formula which are used in the present dishwashing compositions R is a hydrocarbon group having from 7 to 22 carbon atoms

and suitably from 11 to 22 carbon atoms. The hydrocarbon group R can be straight or branched, saturated or unsaturated and optionally contain substituents such as hydroxyl groups. The group R can also be a cycloalkyl-alkyl group, an aralkyl or aralkenyl group where the alkyl or alkenyl group contains at least 6 carbon atoms. R is preferably an alkyl or alkenyl group and it is particularly preferred that R is a hydrocarbon group originating from coco, tallow or oleic fatty acid. The amphoteric compounds of formula (I) can, as indicated, contain a group A which is a carbonyl group or one or several ethoxy- or propoxy-groups. When A is ethoxy or propoxy groups ethoxy groups are preferred and A is then especially one such group. Compounds which do not contain a group A, ie in which n is 0, are preferred. R_1 in the given formula is hydrogen or a lower alkyl group, suitably with 1 to 6 carbon atoms and is preferably hydrogen or a methyl group. x is 2 or 3 and y is suitably 2, 3 or 4 and preferably 2 or 3. The group R_2 is suitably a methylene or an ethylene group, preferably a methylene group. M is hydrogen or an ion from the groups alkali metals, alkaline earth metals, ammonium or substituted ammonium such as for example mono-, di- or trihydroxyethylammonium. M is preferably a sodium ion.

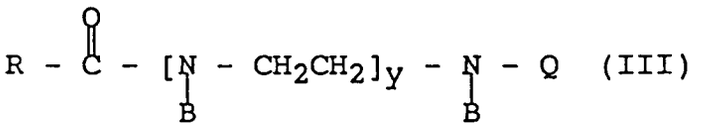
Preferred compounds of the formula (I) have the formula (II):



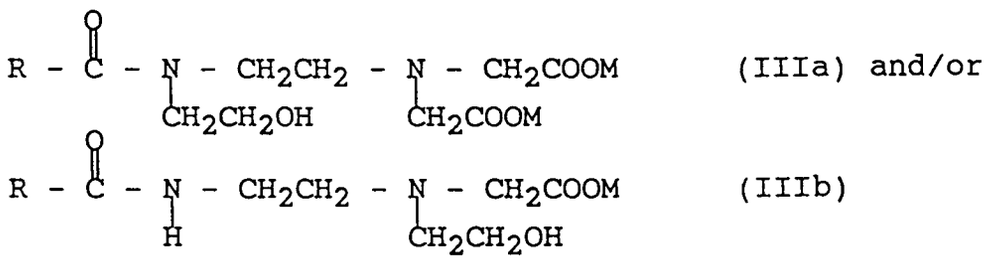
wherein Q is CH_2-COOM or CH_2CH_2COOM, y is 1, 2 or 3 and wherein M, R, x and B have the above given meanings. x is suitably 3 and all groups B are suitably groups Q.

Mixtures of the amphoteric compounds with different values for y are especially preferred. R in these compounds suitably originates from tallow, oleic or coco fatty acid.

In the present compositions the amphoteric compounds of the above given formulae are used in combination with amphoteric compounds containing a carbonyl group. These amphoteric compounds, of type b), can be characterized by the general formula (III). Compounds of formula (III) are

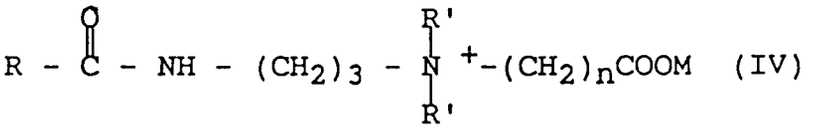


wherein R, y, Q and B have the same meaning as given for compounds of formula (I), whereby, however, one group B is the group $-CH_2CHR'OH$, wherein R' is H or CH_3. The suitable and preferred definitions for R and for M in the group Q are as given for compounds of formula (I). Most suitable are compounds of formula (III) wherein y is 1 and Q is the group $-CH_2COOM$. As typical examples can be given compounds of formulae (IIIa) and/or (IIIb)



Amphoteric compounds of formulae IIIa and IIIb are commercially available as mixtures and usually with a weight ratio of compounds of formula IIIa to compounds of formula IIIb within the range of 1:10 to 10:1.

The composition of the invention may also contain amphoteric compounds of the amido betaine type containing a carbonyl group can be characterized by the general formula (IV)



wherein R is a longer hydrophobic hydrocarbon group, which suitably is a saturated or unsaturated, straight or branched, aliphatic hydrocarbon group with at least 7 carbon atoms. R suitably has from 7 to 21 carbon atoms and preferably is an alkyl or alkenyl group with from 11 to 17 carbon atoms, R' is an alkyl or hydroxyalkyl group with from 1 to 4 carbon atoms. Most suitably both groups R' are methyl groups, and n is 1 or 2. M is preferably hydrogen or a sodium ion.

The amphoteric compounds of type a) act primarily as detoxifying tensides while those of type b) act primarily as tensides, viscosity modifiers and suds formers. Suitable weight ratios between amphoteric compounds of type a) and type b) is within the range of from 1:10 to 10:1 and preferably within the range of from 1:5 to 5:1. The total amount of the defined amphoteric compounds in the dishwashing compositions is suitably from 1 to 20 per cent by weight and preferably from 1.5 to 15 per cent by weight.

Amphoteric compounds of the above given formulae are commercially available and sold under the trade name Ampholak(R) by Berol Nobel AB, Sweden.

According to the present invention it has been found that the above combination of amphoteric compounds can partly replace anionic tensides and be used in liquid dishwashing compositions together with an alkyl polyglycoside to give very mild and efficient compositions with good foaming properties. The mildness which is obtained is dependent not only on the use of the alkyl polyglycoside but also on an efficient detoxification of anionic tensides through formation of mixed micelles of the anionic surface active compounds and the specific amphoteric surface active compounds. The very low critical micelle concentration for the specific amphoteric compounds is hereby utilized. The desired effect is thus obtained with very small amounts of amphoteric compound, particularly of those of the above given formulae I and II.

The alkyl polyglycosides, or sugar ethers, which are used in the present compositions are per se known nonionic surface active compounds which have a hydrophilic polysaccharide head group and a hydrophobic hydrocarbon substituent. The hydrophilic saccharide units can for example be fructoside or glucoside units, glucoside units being preferred. The alkyl polyglycosides suitably contain an average of from 1 to 5 saccharide units and preferably from 1.2 to 1.5 units. The hydrophobic hydrocarbon group, an alkyl or alkenyl group, preferably an alkyl group, suitably has from about 8 to about 20 carbon atoms and preferably from 10 to 18 carbon atoms. The alkyl polyglycosides are commercially available, for example from Henkel under the trade name Plantaren(R)APG. The amount of alkyl polyglycosides in the present compositions is suitably from 1 to 15 per cent by weight and preferably from 1.5 to 4 per cent by weight.

By using the combination of amphoteric compounds, as above defined, an alkyl polyglycoside and anionic tensides, which normally are water soluble sulfonates or sulfates, in liquid dishwashing compositions, the latter can be replaced to a certain extent and hereby a dishwashing composition is obtained which is advantageous from a biological point of view and advantageous with regard to mildness at use. In addition to these advantages, the present compositions also make it possible to substantially reduce the total amount of active components for obtaining the same dishwashing performance as with known compositions based on solely anionic tensides and as with compositions containing anionic tenside, can alkyl betaine amphoteric compound and an alkyl polyglycoside.

In the present compositions anionic tensides of the above mentioned types are also present, but in lower amounts than usual. Of the total amount of amphoteric, nonionic and anionic surface active agents at most 90 per cent by weight are anionic tensides. The amount of anionic tenside is suitably within the range of from 85 to 30 per cent by weight, based on the total amount of amphoteric surface active compounds, nonionic alkyl polyglycoside and anionic surface active compounds, and is particularly within the range of from 85 to 60 per cent by weight. The anionic tensides are, as indicated above, water soluble sulfates or sulfonates, and then particularly alkyl sulfates, alkyl ether sulfates, alkyl sulfonates, alkyl aryl sulfonates, wherein the alkyl group usually contains from 8 to 22 carbon atoms. For anionic tensides containing ether groups these are usually ethylene oxide groups and the compounds normally contain between 1 and 10 such groups per molecule. The cations are usually alkali metals, alkaline earth metals, ammonium or amines such as mono-, di- and triethanol amine cations. As some specific examples of anionic tensides can be mentioned sodium lauryl sulfonate, sodium lauryl ether sulfate with two or three ethylene oxide groups, the corresponding ammonium or ethanol amine salts, sodium or other salts of dodecyl benzene sulfonic acid and alkyl benzene sulfonic acid wherein the alkyl group contains an average of from 11 to 13 carbon atoms. At least two different anionic tensides are often used in the dishwashing compositions.

The present dishwashing compositions are liquid and the main component for this is of course preferably water. Water used in liquid dishwashing compositions is often deionized but other types of water can also be used. Other liquid solvents can of course be included, such as for example lower alcohols and glycols and lower alkyl ethers of the glycols. These types of solvents are normally present, if at all present, in minor amounts. As some specific examples can be mentioned ethanol, isopropanol, ethylene glycol etc.. Solvents are sometimes included mainly for preservation. One advantage of the present compositions is, however, that since they contain amphoteric compounds of the type according to formula (I) no solvent is required in order to obtain preservative effect.

The present dishwashing compositions can be prepared in per se conventional manner by simple mixing of the components and they can of course also be used in conventional manner. Normal dosage is about 0.2 g/l dish liquor of a dishwashing composition with a total dry content of from about 10 to about 45 per cent by weight.

The dishwashing compositions can of course also contain other conventionally used additives for improvement of different properties such as thickeners, antibacterial agents, colorants, pigments, perfumes etc.. Other amphoteric compounds can also be present if desired, such as betaines, and also other nonionic tensides. The compositions should be essentially free from cationic surface active agents. The dishwashing compositions of the present invention have good foam properties and no special foam booster or foam stabilizing compounds are thus necessary. However, if desired foam boosting compounds can of course be included in the present compositions and as examples of such can be mentioned amides and amine oxides containing at least one longer hydrophobic hydrocarbon group, ie a fatty acid residue having at least 7 carbon atoms and suitably up to 22 carbon atoms.

As example of a complete dishwashing composition according to the invention as concerns the main essential components those listed below can be given, wherein the ratios between types of compounds are adjusted to fall within the above given limits:

Combination of amphoteric compounds	1 - 15 % by weight
Alkyl polyglycoside	1 - 15 % by weight
Anionic tenside	2 - 15 % by weight
Water	to 100 per cent by weight

The invention is further illustrated in the following examples, which, however, are not intended to limit the same. Parts and per cent relate to parts by weight and per cent by weight respectively, unless otherwise stated.

Example 1

Dishwashing compositions were prepared as follows (all amounts given are as 100% active substance):

Composition I - Reference: 11.2 g of sodium salt of linear alkyl benzene sulfonate with C12 to C18 alkyl groups, 5.6 g of sodium lauryl ether sulfate with 3 ethylene oxide groups, 2.1 g of alkyl polyglycoside, 2.1 g of a C12/C14 alkyl dimethyl betaine sold under the name Amphoteen 24 and 79 g of water.

Composition II - According to the invention: 11.2 g of sodium salt of linear alkyl benzene sulfonate with C12 to C18 alkyl groups, 5.6 g of sodium lauryl ether sulfate with 3 ethylene oxide groups, 2.1 g of a mixture of two different amphoteric compounds, a 1:2 mixture of amphoteric compounds sold under the trade marks Ampholak(R)7TX and Ampholak (R) XCO-30, respectively, - the first mentioned amphoteric compound can chemically be characterized as tallowampho polycarboxyglycinate and falls under the definition of compounds according to formula II and the last mentioned one can chemically be characterized as cocoamphocarboxyglycinate and contains a carbonyl group and comprises a mixture of compounds defined in formulae IIIa and IIIb -, 2.1 g of alkyl polyglycoside and 79 g of water.

Composition III - Reference: 11.2 g of alkane (C12-C18) sulfonate, 5.6 g of sodium lauryl ether sulfate with 3 ethylene oxide groups, 2.1 g of alkyl polyglycoside, 2.1 g of alkyl dimethyl betaine and 79 g of water.

Composition IV - According to the invention: 11.2 g of alkane C12-C18 sulfonate, 5.6 g of sodium lauryl ether sulfate with 3 ethylene oxide groups, 2.1 g of the same mixture of two amphoteric compounds as in Composition II, 2.1 g of alkyl polyglycoside and 79 g of water.

The alkyl polyglycoside in all compositions was an alkyl polyglycoside sold under the name Plantaren(R) APG600 by Henkel. It has an average number of saccharide units of 1,4 and a C12-14-16 hydrocarbon group. The alkyl dimethyl betaine used in reference compositions I and III was a C12-C14 alkyl dimethyl

betaine sold under the name of Amphoteen(R)24 by Berol Nobel AB.

All four compositions were tested by titration of 2 g/l of the solutions with béchamel sauce. Foam heights were determined and plotted against the amount of béchamel sauce. The areas of the diagrams were integrated and weighed and presented as efficiency versus content of amphoteric compound. The area for reference Composition I was set as efficiency 1. The efficiency index for the compositions are shown in the following table.

Composition	Efficiency Index
I - Reference	1
II - According to the invention	1
III - Reference	1.25
IV - According to the invention	1.8

As can be seen, Composition II according to the invention had the same efficiency index as the reference but for Composition IV according to the invention a considerably better efficiency was obtained in comparison with the reference Composition III.

Dishwashing performance of the compositions was assessed by the practical dishwashing tests. 1 ml beef tallow with an iodine number of 55.1 was applied on each plate and the plates were allowed to dry over one night at ambient temperature. 8 l of water with a concentration of 0.2 g/l of each tested composition and with a hardness of 20 °dH were used at a temperature of 45 + -2 °C. After the initial generation of foam the dried plates covered with beef tallow were cleaned with a brush until the foam collapsed. The results were recorded as the number of washed plates and set in relation to the results obtained with composition 1.

Composition	Number of washed plates	Dishwashing performance %
I - Ref.	8	100
II - Invention	10	125
III - Ref.	16	200
IV - Invention	20	250

From this table it can be seen that both compositions according to the invention gave substantially better dishwashing performance than the reference compositions.

Example 2

The following composition according to the invention was prepared: 8.98 g of sodium lauryl ether sulfate with 2 ethylene oxide groups, 2 g of alkyl polyglycoside Plantaren (R) APG 600, 6.67 g of cocoamido betaine, 3.32 g of Ampholak(R) 7TX and 79.03 g of water.

The dishwashing performance of this composition was evaluated in accordance with Example 1. 17 plates were washed. It should here be noted that this composition was based on solely sodium lauryl ether sulfate as anionic tenside, which generally means lower washing performance.

Claims

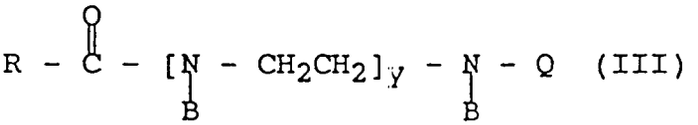
1. A liquid dishwashing composition comprising an anionic surface active agent, a nonionic surface active agent and a combination of amphoteric compounds , **characterized in** that the nonionic surfactant is an alkyl polyglycoside and the combination of amphoteric compounds comprises

1) an amphoteric compound of type a) which has the general formula (I)

$$R - (A)_n - [N(B) - (CHR_1)_x]_y - N(B) - Q \quad (I)$$

wherein R is a hydrocarbon group having from 7 to 22 carbon atoms, n is 0 or 1, A is a carbonyl group [C(O)], a group $(OCH_2CH_2)_z$ or $(OCH_2CH_2CH_2)_z$ wherein z is an integer of from 1 to 5, R_1 is hydrogen or a lower alkyl group, x is 2 or 3, y is an integer of 0 to 4, Q is the group $-R_2COOM$ wherein R_2 is an alkylene group having from 1 to 6 carbon atoms and M is hydrogen or an ion from the groups alkali metals, alkaline earth metals, ammonium and substituted ammonium and B is hydrogen or a group Q as defined, and

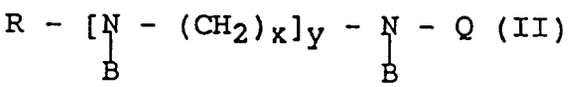
2) an amphoteric compound of type b) which contains a carbonyl group and which has the general formula (III)



(III)

wherein R, y, Q and B have the same meaning as given for compounds of formula (I), whereby, however, one group B is the group $-CH_2CHR'OH$, wherein R' is H or CH_3.

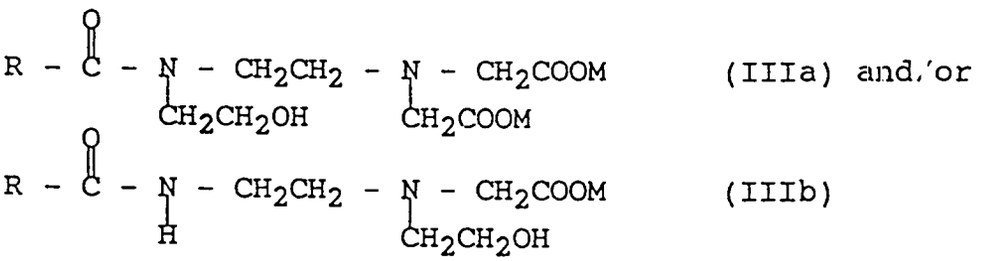
2. A dishwashing composition according to claim 1, characterized in that the amphoteric compound of type a) has the general formula (II):



(II)

wherein Q is CH_2-COOM or CH_2CH_2COOM, y is 1, 2 or 3 and wherein M, R, x and B are as defined in claim 1.

3. A dishwashing composition according to claim 1 or 2, characterized in that the amphoteric compound of type b) which contains a carbonyl group has the general formula (IIIa) and/or (IIIb)



(IIIa) and/or

(IIIb)

wherein R is a hydrocarbon group having from 7 to 22 carbon atoms.

4. A dishwashing composition according to claim 1, 2 or 3, characterized in that R in the amphoteric compounds is an alkyl or alkenyl group with from 11 to 22 carbon atoms.

5. A dishwashing composition according to any of the preceding claims, characterized in that the weight ratio of amphoteric compound of type a) to amphoteric compound of type b) is within the range of from 1:10 to 10:1.

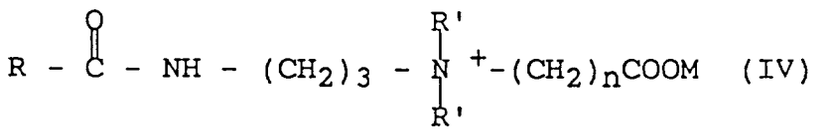
6. A dishwashing composition according to any of claims 1 to 5, characterized in that it comprises the combination of amphoteric compounds in a total amount of from 1 to 20 per cent by weight.

7. A dishwashing composition according to claim 1, characterized in that the alkyl polyglycoside contains an average of from 1.2 to 1.5 saccharide units and a hydrocarbon group having from 10 to 16 carbon atoms.

8. A dishwashing composition according to claim 1, characterized in that the anionic surface active agent is a water soluble sulfate or sulfonate.

9. A dishwashing composition according to claim 1, characterized in that it comprises from 85 to 30 per cent by weight of anionic surface active agent and from 1 to 15 % by weight of alkyl polyglycoside.

10. A dishwashing composition according to any of the preceding claims, characterized in that it comprises an amphoteric compound which has the general formula (IV)



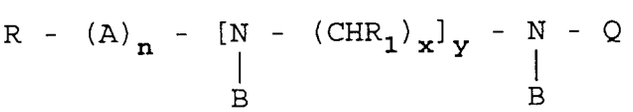
(IV)

wherein R has the same meaning as given for compounds of formula (I), R' is an alkyl or hydroxyalkyl group with from 1 to 4 carbon atoms, n is 1 or 2 and M is hydrogen or a sodium ion.

Patentansprüche

1. Flüssige Geschirrspül-Zusammensetzung, die ein anionisches Tensid, ein nicht-ionisches Tensid und eine Kombination von amphoteren Verbindungen umfaßt, dadurch gekennzeichnet, daß das nicht-ionische Tensid ein Alkylpolyglycosid ist und die Kombination von amphoteren Verbindungen umfaßt

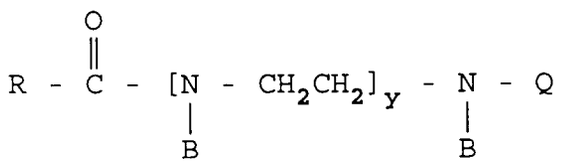
1) eine amphotere Verbindung vom Typ a), die die allgemeine Formel (I)



(I)

aufweist, worin R eine Kohlenwasserstoffgruppe mit 7 bis 22 Kohlenstoffatomen darstellt, n 0 oder 1 ist, A für eine Carbonylgruppe [C(O)], eine Gruppe $(OCH_2CH_2)_z$ oder $(OCH_2CH_2CH_2)_z$, worin z eine ganze Zahl von 1 bis 5 ist, steht, R_1 Wasserstoff oder eine Niederalkylgruppe ist, x 2 oder 3 ist, y eine ganze Zahl von 0 bis 4 darstellt, Q die Gruppe $-R_2COOM$ darstellt, worin R_2 eine Alkylengruppe mit 1 bis 6 Kohlenstoffatomen ist und M Wasserstoff oder ein Ion aus den Gruppen Alkalimetalle, Erdalkalimetalle, Ammonium und substituiertes Ammonium bedeutet, und B Wasserstoff oder eine Gruppe Q wie definiert ist, und

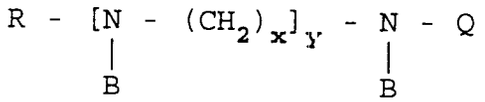
2) eine amphotere Verbindung vom Typ b), welche eine Carbonylgruppe enthält und die allgemeine Formel (III)



(III)

aufweist, worin R, y, Q und B dieselbe Bedeutung wie für die Verbindungen der Formel (I) angegeben aufweisen, wobei jedoch eine Gruppe B die Gruppe $-CH_2CHR'OH$ ist, worin R' für H oder CH_3 steht.

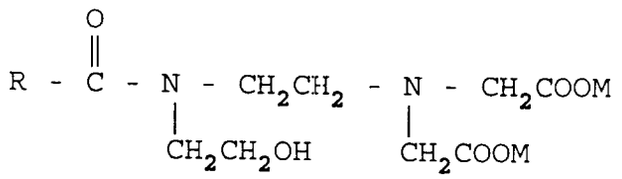
2. Geschirrspül-Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß die amphotere Verbindung vom Typ a) die allgemeine Formel (II) aufweist:



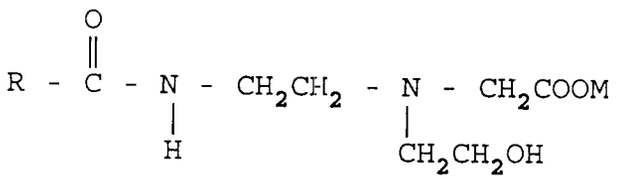
(II)

worin Q für CH_2-COOM oder CH_2CH_2COOM steht, y 1, 2 oder 3 ist und M, R, x und B wie in Anspruch 1 definiert sind.

3. Geschirrspül-Zusammensetzung nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die amphotere Verbindung vom Typ b), die eine Carbonylgruppe enthält, die allgemeine Formel (IIIa) und/oder (IIIb) aufweist



(IIIa) und/oder



(IIIb)

worin R eine Kohlenwasserstoffgruppe mit 7 bis 22 Kohlenstoffatomen darstellt.

4. Geschirrspül-Zusammensetzung nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß R in den amphoteren Verbindungen eine Alkyl- oder Alkenylgruppe mit 11 bis 22 Kohlenstoffatomen ist.

5. Geschirrspül-Zusammensetzung nach irgendeinem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß das Gewichtsverhältnis von amphoterer Verbindung des Typs a) zu amphoterer Verbindung des Typs b) im Bereich von 1:10 bis 10:1 liegt.

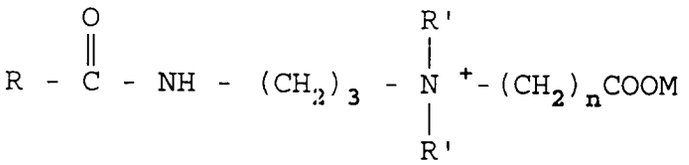
6. Geschirrspül-Zusammensetzung nach irgendeinem der Ansprüche 1 bis 5, dadurch gekennzeichnet, daß sie die Kombination von amphoteren Verbindungen in einer Gesamtmenge von 1 bis 20 Gewichtsprozent umfaßt.

7. Geschirrspül-Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß das Alkylpolyglycosid durchschnittlich 1,2 bis 1,5 Saccharid-Einheiten sowie eine Kohlenwasserstoffgruppe mit 10 bis 16 Kohlenstoffatomen enthält.

8. Geschirrspül-Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß das anionische Tensid ein wasserlösliches Sulfat oder Sulfonat ist.

9. Geschirrspül-Zusammensetzung nach Anspruch 1, dadurch gekennzeichnet, daß sie umfaßt 85 bis 30 Gewichtsprozent anionisches Tensid und 1 bis 15 Gewichts-% Alkylpolyglycosid.

10. Geschirrspül-Zusammensetzung nach irgendeinem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß sie umfaßt eine amphotere Verbindung, die die allgemeine Formel (IV)



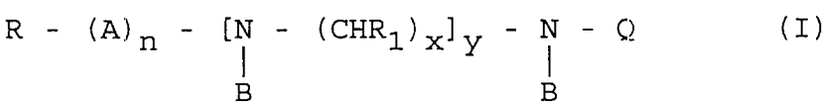
(IV)

aufweist, worin R dieselbe Bedeutung wie für die Verbindungen der Formel (I) angegeben aufweist, R' eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen ist, n 1 oder 2 ist und M Wasserstoff oder eine Natriumion darstellt.

Revendications

1. Composition liquide pour la vaisselle comprenant un agent tensioactif anionique, un agent tensioactif non ionique et une combinaison de composés amphotères, caractérisée en ce que l'agent tensioactif non ionique est un alkyl polyglycoside et en ce que la combinaison de composés amphotères comprend

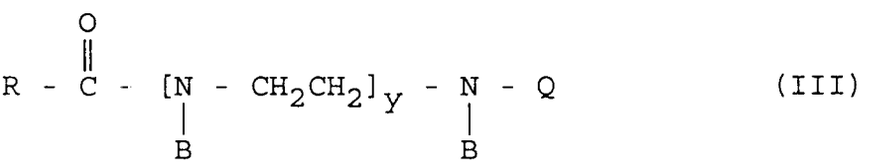
   1) un composé amphotère de type a) ayant la formule générale (I)



(I)

   dans laquelle R est un groupe hydrocarboné ayant de 7 à 22 atomes de carbone, n est 0 ou 1, A est un groupe carbonyle [C(O)], un groupe $(OCH_2CH_2)_z$ ou $(OCH_2CH_2CH_2)_z$ dans lequel z est un entier de 1 à 5, R_1 est l'hydrogène ou un groupe alkyle inférieur, x est 2 ou 3, y est un entier de 0 à 4, Q est le groupe $-R_2COOM$ dans lequel R_2 est un groupe alkylène ayant de 1 à 6 atomes de carbone et M est l'hydrogène ou un ion du groupe des métaux alcalins, du groupe des métaux alcalino-terreux, du groupe de l'ammonium et de l'ammonium substitué et B est l'hydrogène ou un groupe Q tel que défini, et

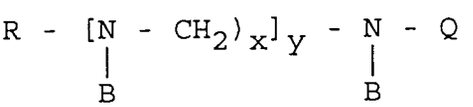
   2) un composé amphotère de type b) contenant un groupe carbonyle et ayant la formule générale (III)



(III)

   dans laquelle R, y, Q et B ont la même signification que celle donnée pour les composés de formule (I), où, toutefois, un groupe B est le groupe $-CH_2CHR'OH$, dans lequel R^1 est H ou CH_3.

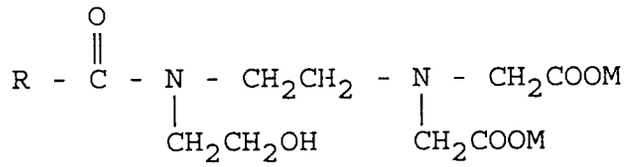
2. Composition pour la vaisselle selon la revendication 1, caractérisée en ce que le composé amphotère de type a) possède la formule générale (II):



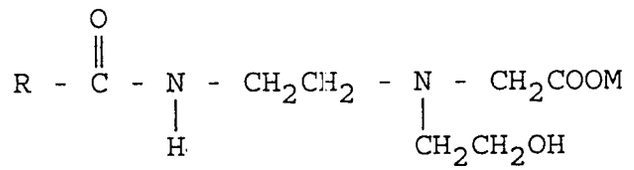
(II)

   dans laquelle Q est CH_2-COOM ou CH_2CH_2COOM, y est 1, 2 ou 3 et dans laquelle M, R, x et B sont tels que définis dans la revendication 1.

3. Composition pour la vaisselle selon la revendication 1 ou 2, caractérisée en ce que le composé amphotère de type b) contenant un groupe carbonyle possède la formule générale (IIIa) et/ou (IIIb)



(II a) et/ou



(II b)

dans lesquelles R est un groupe hydrocarboné ayant de 7 à 22 atomes de carbone.

4. Composition pour la vaisselle selon la revendication 1, 2 ou 3, caractérisée en ce que R, dans les composés amphotères, est un groupe alkyle ou alcényle ayant de 11 à 22 atomes de carbone.

5. Composition pour la vaisselle selon l'une quelconque des précédentes revendications, caractérisée en ce que le rapport pondéral du composé amphotère de type a) au composé amphotère de type b) est dans l'intervalle allant de 1:10 à 10:1.

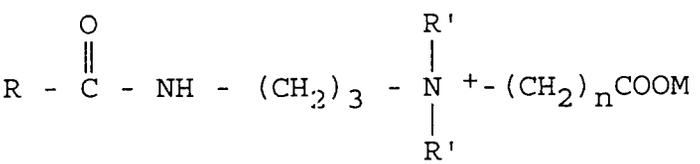
6. Composition pour la vaisselle selon l'une quelconque des revendications 1 à 5, caractérisée en ce qu'elle comprend la combinaison de composés amphotères en une quantité totale de 1 à 20 pour cent en poids.

7. Composition pour la vaisselle selon la revendication 1, caractérisée en ce que l'alkyl polyglycoside contient une moyenne de 1,2 à 1,5 unités saccharides et un groupe hydrocarboné ayant de 10 à 16 atomes de carbone.

8. Composition pour la vaisselle selon la revendication 1, caractérisée en ce que l'agent tensioactif anionique est un sulfate ou un sulfonate soluble dans l'eau.

9. Composition pour la vaisselle selon la revendication 1, caractérisée en ce qu'elle comprend 85 à 30 pour cent en poids d'agent tensioactif anionique et de 1 à 15% en poids d'alkyl polyglycoside.

10. Composition pour la vaisselle selon l'une quelconque des revendications précédentes, caractérisée en ce qu'elle comprend un composé amphotère ayant la formule générale (IV)



(IV)

dans laquelle R possède la même signification que celle donnée pour les composés de formule (I), R' est un groupe alkyle ou hydroxyalkyle ayant de 1 à 4 atomes de carbone, n est 1 ou 2 et M est l'hydrogène ou un ion sodium.