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(54) **Personal cleansing product with odor compatible bulky amine cationic polymer**

Körperwaschmittel mit geruchsverträglichem kationischem Polymer auf der Basis sperriger Amine

Produit pour le nettoyage corporel avec polymère cationique à groupe amine encombrante et odeur compatible

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Description

This invention pertains to personal cleansing compositions for personal washing, which compositions comprise quaternary amine polymers.

Liquid and solid bar compositions based on soap and/or synthetic surfactants are commonly used for cleansing the human body. A wide variety of additives have been suggested for inclusion in said compositions. Some enhance the physical properties, e.g., bar hardness, wear rate, resistance to water. Others enhance the in-use properties such as lather characteristics and some impact on the impression the composition has on the skin both during washing (bar feel) and afterwards.

It has been discovered that the addition of certain polymeric materials to such liquids and bars can have a beneficial skin mildness effect for the user without deleteriously affecting other product properties. In general, the useful polymers should be soluble or dispersible in water to a level of at least 1% by weight, preferably at least 5% by weight at 25°C. Suitable polymers are high molecular weight materials (mass-average molecular weight determined, for instance, by light scattering, being generally from 20,000 to 5,000,000, preferably from 50,000 to 4,000,000, and more preferably from 500,000 to 3,000,000) and preferably have a thickening ability such that a 1% dispersion of the polymer in water at 20°C exceeds 1 Pa·S (10 poise) at a shear rate of 10^{-2} sec⁻¹. Useful polymers are the cationic, nonionic, amphoteric, and anionic polymers useful in the cosmetic field. Preferred are cationic and nonionic resins and mixtures thereof. Highly preferred are the cationic resins.

To date the preferred cationic polymers include cationic guar gums such as hydroxypropyltrimethylammonium guar gum. However, it has been discovered that there is an odor problem with using such "cationic trimethylamine quaternized polymers" in compositions having a pH of 7.5 or above. They break down and release odoriferous labile amines.

Odoriferous labile amines are detectable at levels as low as 2 ppb. Personal cleansing products containing odoriferous quaternary amine polymers are disclosed in one or more of the following patents:

<u>Pat. No.</u>	<u>Date</u>	<u>Inventor(s)</u>
US-A-3,761,418	9/1973	Parran, Jr.;
US-A-4,234,464	11/1980	Morshauser;
US-A-4,061,602	12/1977	Oberstar et al.;
US-A-4,472,297	9/1984	Bolich et al.;
US-A-4,491,539	1/1985	Hoskins et al.;
US-A -4,540,507	9/1985	Grollier;
US-A-4,673,525	6/1987	Small et al.;
US-A-4,704,224	11/1987	Saud; and
JP-A-J57105	6/30/82	Pola.

EP-A-0308189 and WO-A-90/15589 disclose personal cleansing compositions comprising surfactants and cationic polymers.

The present invention relates to a personal cleansing product in the form of a toilet bar made with a selected quaternized cationic polymer wherein each quaternary ammonium moiety is derived from a bulky amine.

An object of the present invention is to provide an improved toilet soap bar comprising a cationic polymeric skin conditioning agent which does not comprise a potential odoriferous amine moiety.

Other objects will become apparent from the detailed description below.

The present invention comprises basic personal cleansing compositions comprising from 0.2% to 5% by weight selected cationic polymer wherein each cationic group is derived from a "bulky" amine. Compared to personal cleansing compositions which are prepared with cationic polymers which comprise a potential labile amine moiety, e.g., trimethylamine-based cationic polymers, the compositions of this invention consistently exhibit superior odor stability due to the selected "bulky amine" cationic polymers. The term "basic personal cleansing compositions" as used herein means that the composition has a pH of at least 8.5.

While not being bound to any theory, illustrations A and B show the theoretical degradation of labile amine containing cationic polymers in a basic environment. Generic degradation:

(A) Polymer-CHR-CH₂-N+(CH₃)₃ ----> polymer-CR=CH₂ + N(CH₃)₃ where R can be meant to represent any group (e.g., H, OH, alkyl chain); e.g.,

(B) Guar-CH₂-O-CH₂-CH(OH)-CH₂-N+(CH₃)₃ ----> Guar-CH₂-O-CH₂-C(OH)=CH₂ + N(CH₃)₃

The extent of this degradation and the effect of it on product odor were not appreciated heretofore. The level of

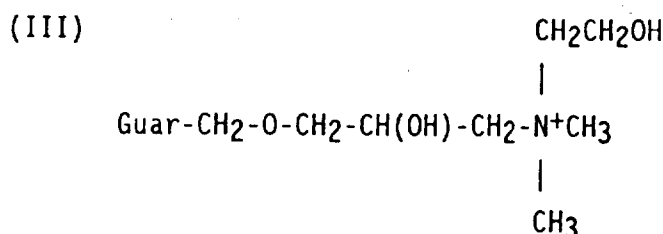
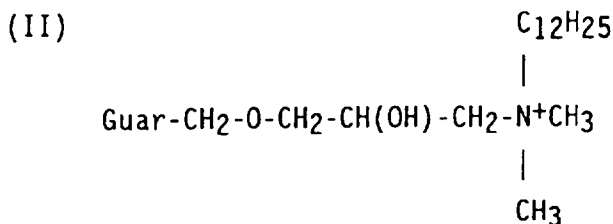
hydration required to cause a problem is very low and therefore it is extremely difficult to detect and identify the offending material.

The Bulky Amine Cationic Polymers

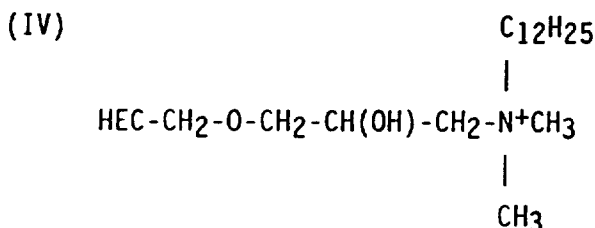
Bulky amine polymers are defined herein as POLYMERS with the following non-labile cationic functional group:

(I) (POLYMER)-CR¹H-CR²R³-NR⁴R⁵R⁶ wherein R¹-R³ is H or any other substituent and R⁴, R⁵ and R⁶ combine with N to form an amine with less odor impact than trimethylamine, at least one of R⁴, R⁵ and R⁶ is alkyl having a chain length of from 2 to 24 carbon atoms, or an alkoxy alkyl group containing from 2 to 12 carbon atoms or a hydroxy ethyl group.

Some examples of preferred bulky amine polymers are cationic guar gums having the following structures:



An example of a bulky amine hydroxyethyl cellulose (HEC) polymer is:



These "bulky amine" groups add additional complexity to the preparation of the polymer and the finished compositions. They would not be used, except for the existence of the odor problem with the trimethylamine derived polymer. They may also have improved skin conditioning benefits.

The composition of this invention comprises from 0.2% to 5%, preferably from 0.5% to 2% by weight, of the cationic polymer. The average molecular weight of the preferred cationic guar gum is from 50,000 to 1,000,000, preferably from 100,000 to 500,000, and more preferably from 250,000 to 400,000 and the degree of substitution is from 0.5 to 4, preferably from 1 to 2.5. Some preferred cationic guar (galactomannans) are disclosed in US-A-4,758,282, Stober et al., issued July 19, 1988. The cationic guar gum polymers disclosed in EP-A-367335, published 09.05.90, would be suitable when the cationic groups are substituted with bulky amine groups.

Other bulky amine cationic polymeric skin conditioning agents useful in the present invention have molecular weights of from 1,000 to 3,000,000. Useful polymers are selected from the group consisting of:

- (I) cationic polysaccharides;
- (II) cationic copolymers of saccharides and synthetic cationic monomers, and
- (III) synthetic polymers selected from the group consisting of any other synthetic polymer containing pendant quaternary amine groups, e.g., quaternized silicones and quaternized methacrylates.

Specific examples of members of the bulky amine cationic polysaccharide class include the cationic hydroxyethyl cellulose, e.g., LM-200 (RTM) made by Union Carbide Corporation.

The cationic copolymers of saccharides and synthetic cationic monomers useful in the present invention encompass those containing the following saccharides: glucose, galactose, mannose, arabinose, xylose, fucose, fructose, glucosamine, galactosamine, glucuronic acid, galacturonic acid, and 5 or 6 membered ring polyalcohols. Also included

are hydroxymethyl, hydroxyethyl and hydroxypropyl derivatives of the above sugars.

The boiling points of some exemplary substituted amines are set out in Table 1.

TABLE 1

Eliminated Amine	Boiling Point/°C
Labile Amine	
Trimethylamine	3
Bulky Amine	
Dimethylethylamine	36
Methyldiethylamine	63
Triethylamine	89
Dimethyloctylamine	195
Dimethylcyclohexylamine	158
Dimethylbenzylamine	183
Dimethylethanolamine	133
Diethylethanolamine	161

For a homologous series of compounds (e.g., tri-substituted amines), volatility decreases with increasing molecular weight. Volatility is dependent, among other things on the boiling point of the neat component. Odor impact also has a strong dependence on the amount of volatilized material that reaches the nose. Table 1 demonstrates the significant effect which adding "bulky" groups has on volatility and, hence, odor impact of amines. For pure hydrocarbon substitution, the larger the alkyl chains (or the larger the degree of long chain substitution) the lower the odor impact. Thus, the quaternised cationic polymers used in the present invention have an ammonium moiety derived from bulky amines having boiling points of greater than 80°C.

The Surfactant Component

The surfactant component of the present compositions comprises alkali metal soap or mixtures of alkali metal soap and synthetic surfactant.

Alkali metal soaps can be made by direct saponification of the fats and oils or by the neutralization of the free fatty acids which are prepared in a separate manufacturing process. Particularly useful are the sodium and potassium salts of the mixtures of fatty acids derived from coconut oil and tallow, i.e., sodium and potassium tallow and coconut soaps.

The term "tallow" is used herein in connection with fatty acid mixtures which typically have an approximate carbon chain length distribution of 2.5% C₁₄, 29% C₁₆, 23% C₁₈, 2% palmitoleic, 41.5% oleic and 3% linoleic. (The first three fatty acids listed are saturated.) Other mixtures with similar distribution, such as the fatty acids derived from various animal tallows. The tallow can also be hardened (i.e., hydrogenated) to convert part or all of the unsaturated fatty acid moieties to saturated fatty acid moieties.

When the terms "coconut oil" and "coconut fatty acid" (CNFA) are used herein, they refer to fatty acid mixtures which typically have an approximate carbon chain length distribution of about 8% C₇, 7% C₁₀, 48% C₁₂, 17% C₁₄, 9% C₁₆, 2% C₁₈, 7% oleic, and 2% linoleic. (The first six fatty acids listed are saturated.) Other sources having similar carbon chain length distribution such as palm kernel oil and babassu kernel oil are included with the terms coconut oil and coconut fatty acid.

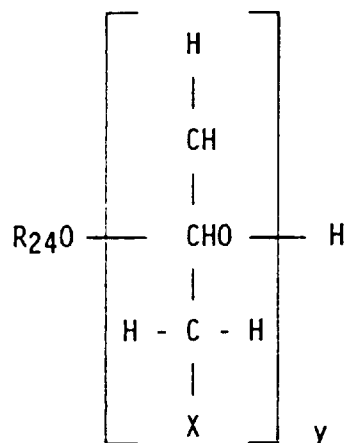
A preferred soap bar of this invention comprises soap as its primary or sole surfactant. It also contains as an essential ingredient a skin conditioning amount of a hydrated, cationic guar gum provided by a cationic guar gum polymer. This polymer is uniformly distributed in the soap bar matrix without affecting the smooth feel of the dry or wet bar.

Another preferred toilet bar is based on mild synthetic surfactants as disclosed in US-A-4,673,525, Small et al., issued June 16, 1987.

Synthetic detergents can also be present in compositions herein. Preferred types of synthetic detergents are of the anionic or nonionic type. Examples of anionic synthetic detergents are the salts of organic sulfuric reaction products such as

alkyl sulfates having the formula R₂₄OSO₃M;
 alkyl sulfonates having the formula R₂₄SO₃M;
 alkyl ether sulfates having the formula R₂₄(OC₂H₄)_xOSO₃M;

alkyl mono glyceride sulfonates having the formula



and alkyl benzene sulfonates having the formula



In the above formulae, R_{24} is a straight or branched chain alkyl of from 8 to 24 carbon atoms; M is an alkali metal or ammonium ion; x is a number of from 1 to 10; y is a number of from 1 to 4; and X is selected from the group consisting of chlorine, hydroxyl, and $-\text{SO}_3\text{M}$, at least one X in each molecule being $-\text{SO}_3\text{M}$. Examples of nonionic synthetic detergents are ethoxylated fatty alcohols (e.g., the reaction product of one mole of coconut fatty alcohol with from 3 to 30 moles of ethylene oxide) and fatty acid amides such as coconut fatty acid monoethanolamide and stearic acid diethanolamide. Although it may be desirable in some instances to incorporate synthetic detergents into the compositions of the present invention, the compositions herein can be free of synthetic detergents. Preferred are the mild synthetic surfactants disclosed in US-A-4,673,525, Small et al., issued June 16, 1987.

Insoluble Alkaline Earth Metal Soaps

Insoluble alkaline earth metal soaps such as calcium stearate and magnesium stearate can also be incorporated into compositions of the present invention at levels up to 30% by weight. These materials are particularly useful in toilet bars in which synthetic detergents are present in that they tend to reduce the relatively high solubility which such bars normally have. These alkaline earth metal soaps are not included within the term "soap" as otherwise used in this specification. The term "soap" as used herein refers to the alkali metal soaps.

Optional Components

The compositions of the present invention can contain optional components such as those conventionally found in personal cleansing products. Conventional antibacterial agents can be included in the present compositions at levels of from 0.5% to 4% by weight. Typical antibacterial agents which are suitable for use herein are 3,4-di- and 3,4,5-tri-bromosalicylanilides; 4,4'-dichloro-3-(trifluoromethyl)carbanilide; 3,4,4'-trichlorocarbanilide and mixtures of these materials. Conventional nonionic emollients can be included as additional skin conditioning agents in the compositions of the present invention at levels up to 40%, preferably at levels of from 1% to 25% by weight. Such materials include, for example mineral oils, paraffin wax having a melting point of from about 37.8°C (about 100°F.), fatty sorbitan esters (see US-A-3,988,255, Seiden, issued Oct. 26, 1976), lanolin and lanolin derivatives, esters such as isopropyl myristate and triglycerides such as coconut oil or hydrogenated tallow.

Free fatty acid such as coconut fatty acid can be added to the compositions herein to improve the volume and quality (creaminess) of the lather produced by the compositions herein.

Conventional perfumes, dyes and pigments can also be incorporated into compositions of the invention at levels up to 5% by weight. Perfumes are preferably used at levels of from 0.5% to 3% by weight and dyes and pigments are preferably used at levels of from 0.001% to 0.5% by weight.

Bar Preparation

Toilet bars of the present invention can be prepared in any conventional manner. E.g., the bulky amine cationic

polymer can be added to noodles of the base soap mixture containing from 10% to 22% moisture in an amalgamator. Any optional ingredients such as perfumes, dyes, etc., are also added to the amalgamator. The mixture is processed in the amalgamator and milled in the conventional manner under conventional conditions. It is then extruded (plodded) into logs for cutting and stamping into toilet bars.

In a method of making the bar of the present invention, the bulky amine cationic polymer is added to soap noodle and mixed in the soap mixing steps of the soap bar making process.

The soap bars of this invention contain up to 15% by weight of a synthetic surfactant. If a synthetic surfactant is included, a mild one is preferred. A mild synthetic surfactant is defined herein as one which does relatively little damage to the barrier function of the stratum corneum. The mild surfactant is preferably used at a level of 2-15% by weight. The fatty acid soap and mild surfactant mixture preferably has a ratio of 2.5:1 to 37:1, preferably from 2.5:1 to 14:1, and most preferably from 6.5:1 to 14:1, soap:synthetic.

A preferred soap bar of this invention also contains from 2% to 17% by weight moisturizer, preferably one selected from glycerin and free fatty acid or mixtures thereof. The more preferred bar of this invention contains at least 4% by weight moisturizer.

Some preferred mild synthetic surfactants useful in this invention include alkyl glyceryl ether sulfonate (AGS), anionic acyl sarcosinates, methyl acyl taurates, N-acyl glutamates, alkyl glucosides, acyl isethionates, alkyl sulfosuccinate, alkyl phosphate esters, ethoxylated alkyl phosphate esters, alkyl ether sulfates, methyl glucose esters, protein condensates, mixtures of alkyl ether sulfates and alkyl amine oxides, betaines, sultaines, and mixtures thereof. Included in the surfactants are the alkyl ether sulfates with 1 to 12 ethoxy groups, especially ammonium and sodium lauryl ether sulfates. Alkyl chain lengths for these surfactants are C₈-C₂₂, preferably C₁₀-C₁₈. The most preferred mild surfactant is sodium CN AGS.

The following examples are presented by way of illustration only.

EXAMPLES 1 AND 2

Toilet bars made using the ingredients set out in Table 2.

TABLE 2

	<u>Ex. 1</u>	<u>Ex. 2</u>
Ingredient	<u>Parts</u>	<u>Parts</u>
Sodium Tallowate(1)	32.90	32.90
Sodium Cocoate(1)	32.90	32.90
Water	9.50	9.50
Sodium Cocoglyceryl Ether		
Sulfonate (AGS)	8.80	8.80
Glycerin	4.00	4.00
Coconut Fatty Acid	3.80	3.80
Triclocarban	1.50	1.50
Sodium Chloride	1.20	1.20
Fragrance	1.20	1.20
Polyquaternium-7(2)(RTM)	1.00	1.00
LM-200(3) (RTM)	1.00	-
Guar-HPTC(4)	-	1.00
Titanium Dioxide	0.35	0.35
Tetrasodium EDTA	0.06	0.06
BHT(5)	0.02	0.02
Miscellaneous(6)	*	*
Totals	<u>100.00</u>	<u>100.00</u>

(1) The values stated for sodium tallowate and sodium cocoate include a low level (>0.1%) of unsaponifiable material.

(2) The trade name for Polyquaternium-7 is Meraquat 500 (RTM).

(3) LM-200 (RTM) is a cationic cellulosic polymer comprising bulky cocoyl amine.

(4) Guar HP1C is guar hydroxypropyltrimmonium chloride is Jaguar C-15 (RTM) (Hi-Tek). Molecular weight is about 200,000 $\pm$ 75,000.

(5) BHT is included in the respective perfume formulas to impart preservative/antioxidant properties both to the perfume and to the finished bar formula.

(6) "Miscellaneous" includes a low level of sodium sulfate and unsulfonated alcohol which come in, e.g., as a by-product of the AGS stream.

In general, making procedures common to those used for conventional toilet soap bar making are employed.

Mixing/Milling Steps

Polymer Addition Step

Plodded soap noodles are conveyed to a continuous mixer (CM) where approximately 1.0 part of cationic polymer is introduced, mixed, and plodded with the soap noodles. Uniform distribution during this addition and mixing step is important for acceptable bar feel performance. The polymer/soap noodles (generic noodles) are conveyed to milling.

Generic Milling Step

Two four-roll soap mills (feed, stationary, middle, and top rolls) are used in this step. This is a split milling (two set of mills are used in parallel) process to obtain a homogeneous mix. Efficient milling is needed in this intimate mixing step.

Dry Mixing Step

The generic noodles are conveyed to a second process system continuous mixer (CM) for the addition and mixing of other minors. This mix is plodded and conveyed to the third process CM.

Wet Mixing Step

The perfume and NaCl/sodium ethylene diamine tetra acetate (EDTA) solution are added and mixed in this wet mixing (CM) step. This finished soap formula is then plodded into soap noodles and conveyed via a transport plodder to a final milling step.

The mixture is milled using a four-roll mill, plodded, and then stamped into toilet bars of any convenient size and shape. The resulting bars are tested for odor. The bars have a pH of 9.5 in a 1% aqueous solution.

Odor Test Procedure

Polymer Cleaning

Stock samples of polymer are cleaned by swelling the polymer with water followed by extensive aeration. These "cleaned" polymers are fairly amine odor-free. After long storage times, some of these polymers exhibited a slight, but recognizable amine odor. Bulky modified polymers required little, if any, cleansing prior to testing/evaluating.

Effects Testing Procedures

The general procedure followed in evaluating the effects of pH on polymer or final product odor was to place about 200 mg of the clean polymer (or a finished product) in a screw-top vial (8 dram) and then add the test solution (buffers at pH values of 7, 10, or 14). The vials are capped and the odor allowed to build up for a short amount of time. Odor is evaluated via olfactory sensing by a panel of experts.

The pH buffers are commercially available buffers:

pH 7 - $\text{KH}_2\text{PO}_4\text{-NaOH}$
 pH 10 - $\text{H}_3\text{BO}_3\text{-KOH}$
 pH 14 - 1N NaOH.

TABLE 3

**Odor Evaluation of Polymers and Products Under
 Induced Alkaline Conditions (pH ~10-14)**

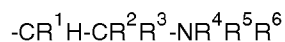
<u>Polymer/Product</u>	<u>Odor Evaluation</u>
JR-400 (RTM)	Strong amine odor
Jaguar C-15 (RTM)	Strong amine odor
LM-200 (RTM)	No amine odor
Product of Ex. 1	No amine odor
Product of Ex. 2	Strong amine odor

**Note: Ex. 1 product produced with LM-200 (RTM)
 Ex. 2 product produced with Jaguar**

JR-400 (RTM) made by Union Carbide Corporation and JAGUAR C-15 (RTM) made by Hi-Tek Polymers, Inc., are outside the selected polymers of this invention.

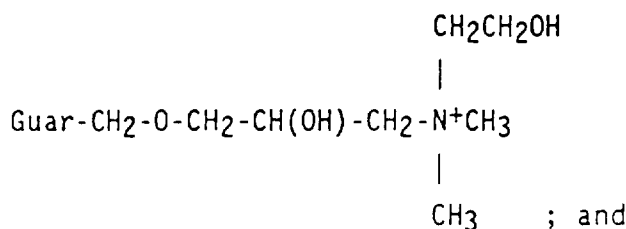
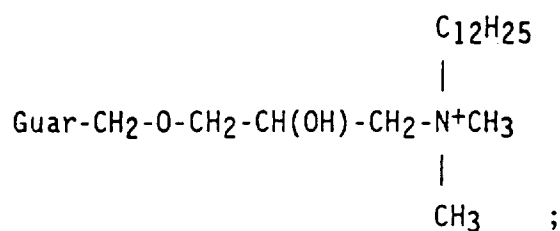
Claims

1. A personal cleansing composition in the form of a toilet bar comprising from 5% to 90% by weight of surfactant selected from alkali metal soap and mixtures of alkali metal soap and synthetic surfactant wherein the synthetic surfactant is present in a level of up to 15% by weight; and from 0.2% to 5% by weight of a quaternised cationic polymer wherein each ammonium moiety has the formula:



wherein $\text{R}^1\text{-R}^3$ is H or any other substituent and at least one of R^4 , R^5 and R^6 is alkyl having a chain length of from 2 to 24 carbon atoms, or an alkoxy alkyl group containing from 2 to 12 carbon atoms or a hydroxy ethyl group; and wherein each quaternary ammonium moiety is derived from a bulky amine having a boiling point of greater than 80 °C whereby the cationic polymer is essentially free of groups forming odiferous amines in a basic environment; and wherein said composition has a pH of at least 8.5 in a 1% aqueous solution.

2. The personal cleansing composition of Claim 1 wherein said cationic polymer is a cationic guar gum.
3. The personal cleansing composition of Claim 1 wherein said cationic polymer is selected from the group consisting of :



mixtures thereof; and wherein said polymer has a molecular weight of from 50,000 to 1,000,000.

4. The personal cleansing composition of Claim 1 wherein said cationic polymer is present at from 0.5% to 4% by weight.

5. The personal cleansing composition of Claim 1 wherein said cationic polymer has a molecular weight of from 1,000 to 3,000,000 and is selected from the group consisting of:

- (I) cationic polysaccharides;
- (II) cationic copolymers of saccharides and synthetic cationic monomers, and
- (III) synthetic polymers selected from the group consisting of:

- (A) quaternized silicones,
- (B) quaternized methacrylates; and

(IV) mixtures thereof.

6. A process for preparing the personal cleansing composition of Claim 1 comprising the steps of:

- (a) forming a mixture of said cationic polymer and alkali metal soap mix noodles wherein said polymer is present in said mixture at a level to provide from 0.2% to 5% by weight of said polymer in said composition; said mixture containing from 6% to 15% moisture;
- (b) milling said mixture into a uniform mixture;
- (c) plodding said uniform mixture;
- (d) extruding said milled and plodded mixture; and
- (e) stamping said extruded mixture into toilet bars.

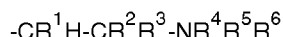
7. The personal cleansing composition of Claim 1 wherein said composition contains from 2% to 15% by weight of synthetic surfactant selected from alkyl glyceryl ether sulfonates, anionic acyl sarcosinates, methyl acyl taurates, N-acyl glutamates, alkyl glucosides, acyl isethionates, alkyl sulfosuccinates, alkyl phosphate esters, ethoxylated alkyl phosphate esters, methyl glucose esters, protein condensates, mixtures of ethoxylated alkyl sulfates and alkyl amine oxides, betaines, sultaines, the alkyl ether sulfates with 1 to 12 ethoxy groups, and mixtures thereof, wherein said synthetic surfactant contains alkyl chains containing from 8 to 22 carbon atoms.

8. The process of Claim 7 wherein said composition contains from about 5% to 10% by weight of a C₈-C₁₈ alkyl glyceryl ether sulfonate.

Patentansprüche

1. Körperreinigungszusammensetzung in der Form eines Toilettenriegels, umfassend 5 Gew.-% bis 90 Gew.-% von

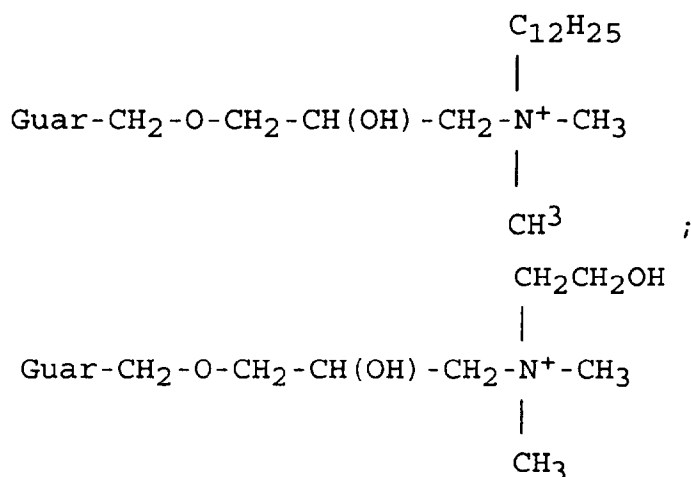
einem grenzflächenaktiven Mittel, welches unter Alkalimetallseife und Gemischen aus Alkalimetallseife und synthetischem grenzflächenaktivem Mittel ausgewählt ist, wobei das synthetische grenzflächenaktive Mittel in einer Menge bis zu 15 Gew.-% vorhanden ist; und 0,2 Gew.-% bis 5 Gew.-% von einem quaternierten kationischen Polymer, wobei jeder Ammoniumrest die Formel:



besitzt, worin R¹ bis R³ für H oder jeden beliebigen anderen Substituenten stehen und mindestens einer der Reste R⁴, R⁵ und R⁶ Alkyl mit einer Kettenlänge von 2 bis 24 Kohlenstoffatomen oder eine Alkoxyalkylgruppe mit 2 bis 12 Kohlenstoffatomen oder eine Hydroxyethylgruppe darstellt; und wobei sich jeder quaternäre Ammoniumrest aus einem sperrigen Amin mit einem Siedepunkt von mehr als 80°C herleitet, wodurch das kationische Polymer im wesentlichen von Gruppen frei ist, welche in einer basischen Umgebung Amine ausbilden, die einen Geruch aufweisen; und wobei die genannte Zusammensetzung in 1%iger wäßriger Lösung einen pH-Wert von mindestens 8,5 aufweist.

2. Körperreinigungszusammensetzung nach Anspruch 1, worin das genannte kationische Polymer ein kationisches Guargummi ist.

3. Körperreinigungszusammensetzung nach Anspruch 1, worin das genannte kationische Polymer von der Gruppe ausgewählt ist, welche aus:



und Gemischen hievon besteht; und wobei das genannte Polymer ein Molekulargewicht von 50.000 bis 1.000.000 aufweist.

4. Körperreinigungszusammensetzung nach Anspruch 1, wobei das genannte kationische Polymer in Mengen von 0,5 Gew.-% bis 4 Gew.-% vorhanden ist.

5. Körperreinigungszusammensetzung nach Anspruch 1, wobei das genannte kationische Polymer ein Molekulargewicht von 1.000 bis 3.000.000 aufweist und von der Gruppe ausgewählt ist, welche aus:

(I) kationischen Polysacchariden;

(II) kationischen Copolymeren von Sacchariden und synthetischen kationischen Monomeren; und

(III) synthetischen Polymeren, welche von der aus:

(A) quaternierten Siliconen,

(B) quaternierten Methacrylaten bestehenden Gruppe ausgewählt ist; und

(IV) Gemischen hievon besteht.

6. Verfahren zur Herstellung der Körperreinigungszusammensetzung nach Anspruch 1, umfassend die Schritte von:

(a) Ausbilden eines Gemisches aus dem genannten kationischen Polymer und Alkalimetallseifengemischnadeln, wobei das genannte Polymer im genannten Gemisch in einer Menge vorhanden ist, um 0,2 Gew.-% bis 5 Gew.-% des genannten Polymers in der genannten Zusammensetzung zu gewährleisten; welches Gemisch 6% bis 15% Feuchtigkeit aufweist;

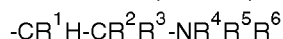
- (b) Piliieren des genannten Gemisches zu einem einheitlichen Gemisch;
 (c) Strangpressen des genannten einheitlichen Gemisches;
 (d) Extrudieren des genannten pilierten und stranggepreßten Gemisches; und
 (e) Prägen des genannten extrudierten Gemisches zu Toilettenriegeln.

7. Körperreinigungszusammensetzung nach Anspruch 1, wobei die genannte Zusammensetzung 2 Gew.-% bis 15 Gew.-% an synthetischem grenzflächenaktivem Mittel enthält, welches unter Alkylglycerylethersulfonaten, anionischen Acylsarcosinaten, Methylacyltauraten, N-Acylglutamaten, Alkylglucosiden, Acylisethionaten, Alkylsulfosuccinaten, Alkylphosphateestern, ethoxylierten Alkylphosphateestern, Methylglucoseestern, Proteinkondensaten, Gemischen von ethoxylierten Alkylsulfaten und Alkylaminoxiden, Betainen, Sultainen, den Alkylethersulfaten mit 1 bis 12 Ethoxygruppen und Gemischen hievon ausgewählt ist, wobei das genannte synthetische grenzflächenaktive Mittel Alkylketten mit 8 bis 22 Kohlenstoffatomen aufweist.

8. Verfahren nach Anspruch 7, wobei die genannte Zusammensetzung 5 Gew.-% bis 10 Gew.-% eines C₈-C₁₈-Alkylglycerylethersulfonates enthält.

Revendications

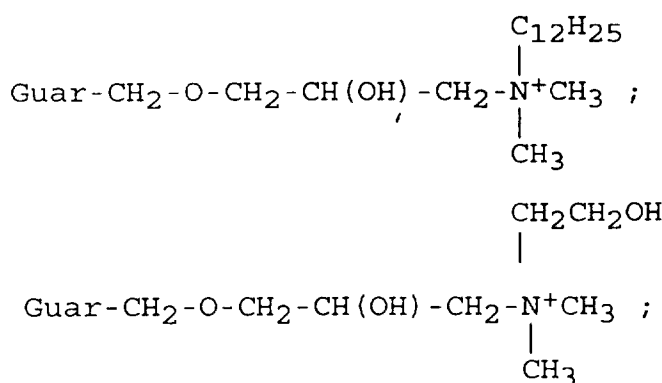
1. Composition pour le nettoyage corporel, sous la forme d'un pain de toilette comprenant de 5 à 90 % en poids d'un tensioactif choisi parmi les savons de métal alcalin et les mélanges de savons de métal alcalin et de tensioactifs synthétiques, le tensioactif synthétique étant présent en une quantité allant jusqu'à 15 % en poids ; et de 0,2 à 5 % en poids d'un polymère cationique quaternisé dans lequel chaque fragment ammonium a la formule :



dans laquelle R¹ à R³ sont H ou un autre substituant quelconque et au moins l'un des groupes R⁴, R⁵ et R⁶ est un groupe alkyle ayant de 2 à 24 atomes de carbone, un groupe alcoxyalkyle contenant de 2 à 12 atomes de carbone ou un groupe hydroxyéthyle ; et où chaque fragment ammonium quaternaire dérive d'une amine volumineuse ayant un point d'ébullition supérieur à 80°C, grâce à quoi le polymère cationique est pratiquement exempt de groupes formant des amines odoriférantes dans un environnement basique ; et dans laquelle ladite composition a un pH d'au moins 8,5 en solution aqueuse à 1 %.

2. Composition pour le nettoyage corporel selon la revendication 1, dans laquelle ledit polymère cationique est une gomme de guar cationique.

3. Composition pour le nettoyage corporel selon la revendication 1, dans laquelle ledit polymère cationique est choisi dans l'ensemble constitué par :



et leurs mélanges ;

et dans laquelle ledit polymère a une masse moléculaire comprise entre 50.000 et 1.000.000.

4. Composition pour le nettoyage corporel selon la revendication 1, dans laquelle ledit polymère cationique est présent à raison de 0,5 à 4 % en poids.

5. Composition pour le nettoyage corporel selon la revendication 1, dans laquelle ledit polymère cationique a une masse moléculaire comprise entre 1.000 et 3.000.000 et est choisi dans l'ensemble constitué par :

- i) les polysaccharides cationiques ;
- ii) les copolymères cationiques de saccharides et de monomères cationiques synthétiques ; et
- iii) les polymères synthétiques choisis dans l'ensemble constitué par :

- a) les silicones quaternisées,
- b) les méthacrylates quaternisés ; et

iv) leurs mélanges.

- 6.** Procédé pour préparer la composition pour le nettoyage corporel conforme à la revendication 1, comprenant les étapes consistant à :

- a) former un mélange dudit polymère cationique et desdites nouilles de mélange de savons de métal alcalin, dans lequel ledit polymère est présent dans ledit mélange en une quantité suffisante pour que le polymère représente de 0,2 à 5 % en poids de ladite composition ; ledit mélange contenant de 6 à 15 % d'humidité ;
- b) broyer ledit mélange en un mélange uniforme ;
- c) boudiner ledit mélange uniforme ;
- d) extruder ledit mélange broyé et boudiné ; et
- e) emboutir ledit mélange extrudé en pains de toilette.

- 7.** Composition pour le nettoyage corporel selon la revendication 1, dans laquelle ladite composition contient de 2 à 15 % en poids d'un tensioactif synthétique choisi parmi les alkylglycéryléthersulfonates, les acylsarcosinates anioniques, les méthylacyltaurates, les N-acylglutamates, les alkylglucosides, les acyliséthionates, les alkylsulfosuccinates, les esters alkylphosphates, les esters alkylphosphates éthoxylés, les esters méthyl-glucose, les produits de condensation protéiniques, les mélanges d'alkylsulfates éthoxylés et d'oxydes d'alkylamines, les bétaines, les sultaines, les alkylsulfates éthoxylés ayant de 1 à 12 groupes éthoxy, et leurs mélanges, dans laquelle ledit tensioactif synthétique contient des chaînes alkyle contenant de 8 à 22 atomes de carbone.

- 8.** Procédé selon la revendication 7, dans lequel ladite composition contient de 5 à 10 % en poids d'un (alkyl en C₈-C₁₈)glycéryléthersulfonates.