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OPAQUE LIQUID DETERGENT COMPOSITION

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This invention relates to an opaque liquid detergent characterized by improved viscosity characteristics and stability against gravitational separation.

In copending application Serial No. 653,052, filed April 16, 1957, an opaque liquid detergent composition is described. It consists essentially of an anionic organic synthetic detergent in solution in an aqueous vehicle containing therein suspended crystals of an alkyl glyceryl ether sulfonate salt having alkyl radicals ranging in chain length from C_{16} to C_{18} which impart an outstanding opacity to the solution. Water soluble organic solvents can advantageously be used with the aqueous vehicle.

The preferred opaque liquid detergent composition of this copending case contains at least in part, as an anionic synthetic detergent in solution in the aqueous vehicle, an alkyl glyceryl ether sulfonate salt having alkyl radicals ranging in chain length from C_{12} to C_{14}. This alkyl glyceryl ether sulfonate is readily soluble in the aqueous vehicle as compared to the C_{16} to C_{18} alkyl glyceryl ether sulfonate used as the substantially insoluble opacifier. The C_{12} to C_{14} alkyl glyceryl ether sulfonate is an excellent detergent and a particular attribute is the ability to produce stable suds in the use of the liquid detergent composition. Suds stabilization i.e., prolonging of the life of the suds, is very important in a light duty liquid detergent which is used for dish washing and the like since the user gauges the detergency capacity of the washing solution by the amount of suds present and will be likely to be misled if the suds do not persist for a reasonable length of time.

The C_{12} to C_{14} alkyl glyceryl ether sulfonate has still another desirable function. The presence of this solubilized homologue with the C_{16} to C_{18} alkyl glyceryl ether sulfonate opacifying crystals promotes a slight crystal growth and orientation of the suspended opacifier crystals and causes the opacity of the composition to be a highly desirable opalescent sheen rather than merely a milky white opacity.

Having produced an opaque liquid detergent composition with outstanding detergency, sudsing, suds stability and opacity characteristics, it was found desirable to improve its stability against gravitational separation and to lower its viscosity or at least not raise it in the process of improving stability against gravitational separation. Viscosity of the composition can be lowered by the use of water soluble solvents which also increase the amount of anionic synthetic detergents which can be dissolved in the composition. However, solvents do not improve stability; they are expensive and tend to dissolve the opacifier when used in large amounts.

The preferred method of improving stability is to make the specific gravity of the liquid phase close to that of the solid opacifying agent phase. Since the specific gravity of the solid phase of the opaque compositions herein concerned is greater than that of the liquid phase, the

specific gravity of the liquid phase must be increased. This increase can be achieved, as disclosed in the above identified copending application, by dissolving electrolyte salts in the liquid phase.

Dissolved electrolyte salts, in general, tend to reduce the viscosity of the opaque liquid compositions described herein by reducing the tendency of the opacifier crystals to group together or to form gels. This is a result of the electrolytic activity of the ions of the salts reducing the solubility of the opacifier ingredient, tending to keep the opacifier crystals apart in the suspension and keeping them in a finer form. This phenomenon is referred to herein as a "graining action." The use of electrolyte salts as graining agents generally reduces the amounts of the solvents and hydrotropes required to obtain the desired viscosity in opaque liquid compositions.

For the reasons expressed below, the conventionally used electrolyte salts, sodium sulfate, sodium chloride and sodium acetate, have been found to be unsatisfactory for improving the stability and lowering the viscosity of opaque liquid detergent compositions containing C_{12} to C_{14} alkyl glyceryl ether sulfonate.

The solubility of sodium sulfate in the opaque liquid detergents is so low (about 6% at 80° F.) that it cannot be used to obtain even moderately increased specific gravities of the liquid phase. Moreover, quantities as low as 2% by weight in the composition will precipitate in the form of undesirable crystals if the composition is chilled to temperatures which are likely to be encountered in storage and transit. Sodium sulfate performs the proper graining action on the C_{16} to C_{18} alkyl glyceryl ether sulfonate opacifier to decrease the viscosity of the composition. However, it is such a powerful graining agent that it also grains some of the C_{12} to C_{14} alkyl glyceryl ether sulfonate salt out of solution and thus tends to increase the viscosity of the composition because the C_{12} to C_{14} homologue grows on the small crystals of C_{16} to C_{18} alkyl glyceryl ether sulfonate opacifier making the opacifying crystals unduly large and increasing the solid content of the composition.

Sodium chloride is more soluble than sodium sulfate (about 10% at 80° F.), but is not sufficiently soluble to obtain as high range of specific gravities of the liquid phase as is desirable. Sodium chloride also tends to precipitate on chilling the compositions. Sodium chloride is also a powerful graining agent and tends to grain the C_{12} to C_{14} alkyl glyceryl ether sulfonate out of solution which, as described above, tends to increase the viscosity of the composition.

Sodium acetate is more soluble than sodium chloride (about 14% at 80° F.) but, being the salt of an organic acid, is a very weak graining agent. It is expensive and does not increase the specific gravity of the liquid phase of the opaque composition nearly as much as the same concentration of an inorganic salt. It is rather ineffective toward improving the stability against gravitational separation of the opaque liquid compositions.

Thus, the solution of the problem of finding an effective method of increasing stability without an undesirable increase in viscosity in the opaque alkyl glyceryl ether sulfonate compositions herein defined demands an electrolyte salt which is highly soluble in the compositions, effective in increasing the specific gravity of the liqiud phase, and has a suitable graining action on the C_{16} to C_{18} alkyl glyceryl ether sulfonate but does not have an undesirable graining action on the C_{12} to C_{14} alkyl glyceryl ether sulfonate.

It is the object of this invention to increase the stability against gravitational separation of opaque liquid deter-

gent compositions containing certain dissolved and undissolved alkyl glyceryl ether sulfonate salts by increasing the specific gravity of the liquid phase of the compositions by providing the compositions with a highly soluble dissolved electrolyte salt.

It is another object to provide a suitable graining action on the C_{16} to C_{18} alkyl glyceryl ether sulfonate opacifying crystals of the compositions described herein without causing an adverse graining action on the dissolved C_{12} to C_{14} alkyl glyceryl ether sulfonate salts thereby reducing the viscosity of the compositions by providing the compositions with a dissolved electrolyte salt.

It is a further object to improve the stability of the liquid opaque compositions described herein throughout alternate heating and chilling of the composition, promoting the retention of the C_{16} to C_{18} alkyl glyceryl ether sulfonate opacifier crystals in the desired fine crystalline form by providing the compositions with a dissolved electrolyte salt.

It has been discovered that sodium nitrate has the heretofore unobserved properties for solving problems such as those here confronted and for accomplishing the above mentioned objects. It is highly soluble and can be dissolved in the concentrated detergent compositions in amounts sufficient to give a desired specific gravity. It has the heretofore undisclosed characteristics of having a suitable graining action which affects the C_{16} to C_{18} alkyl glyceryl ether sulfonate (opacifier) without undesirably affecting the C_{12} to C_{14} homologue, whereby lower viscosities at higher concentrations are achieved. It thus enables a reduction in the use of expensive hydrotropes and solvents.

The composition of the present invention is an opaque liquid detergent which contains in solution a water soluble anionic synthetic detergent alkali metal salt at least part of which is an alkyl glyceryl ether sulfonate salt having alkyl radicals C_{12} to C_{14} in chain length and suspended therein as a crystallizing opacifying agent an alkyl glyceryl ether sulfonate salt having alkyl radicals C_{16} to C_{18} in chain length and being substantially insoluble in the composition at room temperature. The invention lies in the use, in this composition, of an amount of dissolved sodium nitrate sufficient to increase the specific gravity of the aqueous vehicle whereby the stability against gravitational separation is increased and sufficient to provide a graining action on the opacifying crystals thereby reducing the viscosity of the composition. If desired, small amounts of hydrotropes and solvents can also be advantageously used in the aqueous vehicle of the composition of this invention as more fully hereinafter described.

In the preferred method of producing the compositions of the present invention, the opacifier is suspended in the detergent solution by first dissolving a suitable C_{16} to C_{18} alkyl glyceryl ether sulfonate salt in the detergent solution containing dissolved C_{12} to C_{14} alkyl glyceryl ether sulfonate and sodium nitrate at a temperature at which the said C_{16} to C_{18} alkyl glyceryl ether sulfonate salt is substantially completely soluble, and then cooling the solution to a temperature, preferably room temperature, at which C_{16} to C_{18} alkyl glyceryl ether sulfonate salt is substantially insoluble. As the solution is cooled, insoluble alkyl glyceryl ether sulfonate salt precipitates in the form of fine crystals which remain suspended in the detergent solution and which cause the product to have an over-all pearly white opacity. The presence of dissolved C_{12} to C_{14} alkyl glyceryl ether sulfonate salt in the detergent promotes a very slight crystal growth and orientation of the precipitated crystals resulting in an opalescent sheen which enhances the opaque appearance. The crystal growth is probably a result of some C_{12} to C_{14} alkyl glyceryl ether sulfonate coming out of solution; although on heating and chilling of the composition there is also a small amount of digestion and recrystallization of C_{16} to C_{18} alkyl glyceryl ether sulfonate. The dissolved sodium nitrate, through its graining action promotes the precipitation of the opacifier crystals in a very fine form, and this fine form also tends to increase the stability of the opacifier crystals against gravitational separation. Although the opacifier is substantially insoluble in the concentrated detergent solution at room temperatures, it becomes dissolved when the detergent solution is diluted to the concentrations normally used in forming a washing solution.

Examples of the substantially insoluble alkyl glyceryl ether sulfonates are those sodium salts with alkyl chain lengths of about C_{16} to about C_{18}. Sodium alkyl glyceryl ether sulfonates with alkyl chain lengths of C_{12} to C_{14} are too soluble to be used as opacifiers but are, of course, used as all or part of the substantially completely dissolved anionic synthetic detergent in the present compositions.

Alkyl glyceryl ether sulfonates can be produced, for example, by sulfonating with sodium sulfite the reaction product of a higher fatty alcohol and a slight molar excess of epichlorohydrin.

Single sodium alkyl glyceryl ether sulfonates with an alkyl radical of 16 or 18 carbon atoms, for example, can be employed as the opacifier of the compositions of this invention; but it is ordinarily more convenient and less expensive to use a mixture of such compounds in which the alkyl radicals are derived from readily available fatty alcohol mixtures. The higher alcohols derived by the high pressure hydrogenation of tallow or by the sodium reduction of substantially completely hydrogenated tallow are preferred for the production of the opacifier used in the composition of this invention because they contain predominantly 16 and 18 carbon atoms in the alkyl chain. Another source is the separated higher molecular weight alcohol fraction from a fatty alcohol mixture derived by the reduction of coconut oil or palm kernel oil.

Likewise, single sodium alkyl glyceryl ether sulfonates with an alkyl radical of 12 or 14 carbon atoms, for example, can be employed as the dissolved suds stabilizer detergent in the composition of this invention; but it is ordinarily more convenient and less expensive to use a mixture of such compounds in which the alkyl radicals are derived from readily available fatty alcohol mixtures. The higher alcohols produced by the reduction of coconut oil, palm kernel oil or other oils of the coconut oil group are a ready source of C_{12} to C_{14} alcohols. The coconut oil group is defined as a group of tropical nut oils characterized by a preponderance of combined fatty acids having ten to fourteen carbon atoms. Although the while mixture of alcohols from such oils can be used, it is preferred to employ, for example, the separated "middle cut" fraction from a fatty alcohol mixture derived by the reduction of an oil from the coconut oil group. Such a fraction consists chiefly of C_{12} and C_{14} alcohols with the C_6, C_8, C_{18} and most of the C_{10} and C_{16} alcohols removed by fractionation.

In view of the desirable use of materials derived from fractions of the alcohols produced from natural oils, expressions such as "C_{12} to C_{14}" and "C_{16} to C_{18}" should be understood as inclusive of alkyl glyceryl ether sulfonate materials in which these chain lengths predominate.

Many of the various synthetic sulfate and sulfonate detergents well known in the art are useful as the dissolved active detergent in the practice of this invention. The following examples of suitable water soluble anionic synthetic detergents are given only for the purpose of illustrating the wide variety of types of detergent compounds useful in the practice of the invention and it will be appreciated that the scope of the invention is not thereby limited.

The anionic synthetic detergents referred to in this invention are the substantially completely water-soluble (at room temperature) alkali metal salts of organic sul-

furic reaction products having in their molecular structure alkyl radicals having from about 8 to 18 carbon atoms and radicals selected from the group consisting of sulfonic acid and sulfuric acid ester radicals. The alkali metal salts of the sulfuric reaction products which find greatest utility are those which have from 10 to 14 carbon atoms and predominantly 12 carbon atoms in the alkyl radical, but since other constituents of the detergent molecule can be varied to increase the degree of solubility, the number of carbon atoms in the alkyl radical can also be adjusted upwardly in such instances to as high as 18, for example. Important examples of the synthetics which may be used in the composition of the present invention are: sodium alkyl benzene sulfonates especially those of the types described in U.S. Patents 2,220,099 and 2,477,383 in which the alkyl groups contain from about 9 to about 15 carbon atoms; sodium alkyl sulfates, especially those derived by sulfation of higher alcohols produced by reduction of coconut oil; sodium coconut oil fatty acid monoglyceride sulfates and sulfonates; sodium salts of sulfuric acid esters of the reaction product of one mole of coconut oil fatty alcohol and about 3 moles of ethylene oxide or of one mole of tallow fatty alcohol and about 10 moles of ethylene oxide; sodium salts of alkyl (C_{12}–C_{14}) ethylene oxide ether sulfates which have an average of one unit of ethylene oxide per molecule; the reaction product of fatty acids esterified with isethionic acid and neutralized with sodium hydroxide where, for example, the fatty acids are derived from coconut oil; sodium salts of a fatty acid amide of a methyl taurine in which the fatty acids, for example, are derived from coconut oil; and others known in the art, a number being specifically set forth in U.S. Patents 2,396,278, Lind; 2,486,921, Byerly; and 2,486,922, Strain.

The dissolved anionic synthetic detergent is present in the opaque liquid compositions of this invention in an amount by weight in the range of about 15% to about 40%. The preferred range is about 20% to about 35%. Included in these amounts of dissolved anionic synthetic detergent is at least about 2% of C_{12} to C_{14} sodium alkyl glyceryl ether sulfonate. This much C_{12} to C_{14} alkyl glyceryl ether sulfonate is necessary to achieve the desired crystal growth and orientation of opacifying crystals for pearly white opalescence and suds stabilizing properties in the opaque liquid composition of this invention. The entire amount of dissolved anionic synthetic detergent in the composition can constitute C_{12} to C_{14} alkyl glyceryl ether sulfonate up to the limit of its solubility although it is preferable to use this detergent in the range of about 2% to about 10% by weight and supplement it with a more soluble anionic synthetic detergent such as sodium alkyl sulfate, a sodium alkyl benzene sulfonate or a sodium alkyl ethylene oxide ether sulfate which has an average of three ethylene oxide units per molecule.

Suspended in the solution of dissolved anionic synthetic detergent is about 1% to about 9%, preferably about 2% to about 5%, by weight of the C_{16} to C_{18} sodium alkyl glyceryl ether sulfonate opacifying agent which is substantially insoluble in the solution at room temperature.

When the amounts of opacifier and active synthetic detergents used in the practice of this invention result in a product that is thick or viscous when combined only with water and the sodium nitrate used does not give the desired viscosity, it is often desirable to thin the mixture with a suitable water soluble organic solvent. Solvents also serve to increase, if desirable, the amount of anionic synthetic detergent which can be dissolved in the opaque liquid compositions of this invention. Ethanol, propanol and isopropanol are useful for this purpose and the amounts used are from 0% to about 15% (ordinarily about 5–10%) by weight of the composition. Ethylene glycol and propylene glycol can also be used but are not as effective as the above mentioned solvents. Up to about 5% sodium toluene, benzene or xylene sulfonate can also be used as a hydrotrope in conjunction with the above mentioned solvents.

The dissolved sodium nitrate can be advantageously used up to the limit of its solubility in the opaque liquid compositions of this invention (up to about 20% at 80° F.). At least about 2% dissolved sodium nitrate by weight of the composition is needed to provide a graining action for the opacifying agent when used in ranges above designated and has a quite noticeable graining effect over a composition containing no dissolved nitrate salt. The specific gravity of the liquid phase increases linearly with increasing amounts of dissolved sodium nitrate. The graining action of the dissolved sodium nitrate on a fixed amount of alkyl glyceryl ether sulfonate increases (decreasing viscosity) with increased amounts of the nitrate salt. However, the difference in effect between high and low concentrations of sodium nitrate with respect to graining action is not as great as the effect of the salt with respect to specific gravity. For anionic synthetic detergent usages within the above ranges, the best combinations of graining action effects and increases in the specific gravity of the liquid phase are found in the range of dissolved sodium nitrate of about 6% to about 18% by weight of the composition.

The use of about 12%, of dissolved sodium nitrate in compositions of this invention results in products with excellent viscosity characteristics and stability against gravitational separation. About 12% dissolved sodium nitrate also results in an optimum graining action.

It has been found that the use of large concentrations of sodium nitrate (about 18%) can result in a liquid phase specific gravity equal to the specific gravity of the opacifier crystals (about 1.15 at 80° F.) with the complete elimination of any settling tendency.

The following examples are illustrative of the present invention, and it will be understood that the invention is not limited thereto. The parts set forth are by weight.

Example I

An opaque liquid detergent composition was prepared from the following ingredients:

10 parts sodium polypropylene benzene sulfonate the polypropylene radical averaging about 12 carbons
10 parts sodium salt of the sulfated reaction product of about three moles of ethylene oxide and about one mole of a mixture of fractionated coconut oil fatty alcohols containing about 2% decyl alcohol, 66% lauryl alcohol 23% myristyl alcohol and 9% cetyl alcohol
4 parts sodium alkyl glyceryl ether sulfonate derived from a mixture of fractionated coconut oil fatty alcohols containing about 2% decyl alcohol, 66% lauryl alcohol, 23% myristyl alcohol and 9% cetyl alcohol
3 parts sodium alkyl glyceryl ether sulfonate derived from a mixture of tallow fatty alcohols containing about 65% stearyl alcohol, 33% cetyl alcohol and 2% myristyl alcohol
5 parts monoethanolamide of coconut oil fatty acid
7 parts ethanol
2 parts sodium toluene sulfonate
12 parts sodium nitrate
47 parts water

The opaque composition of the above ingredients was formed by heating the mixed ingredients to about 125° F. in order to effect complete solution. The mixture was then cooled to about 80° F. in a heat exchanger thereby effecting the precipitation of the crystals of opacifying agent. The resulting composition was an excellent detergent having outstanding sudsing and suds stability characteristics in dishwashing. It poured easily having a viscosity of about 300 cp. at room temperature and had a very stable opacity characterized by an opalescent sheen.

In this example the omission of the sodium nitrate results in a marked increase in viscosity approaching that

of a viscous gel. This condition requires the use of substantially increased amounts of solvent, e.g. ethanol, and hydrotrope, e.g. sodium toluene sulfonate.

In this example the following ingredients in separate compositions can be substituted for the 10 parts sodium polypropylene benzene sulfonate with substantially the same results.

10 parts sodium salt of the sulfated reaction product of about three moles of ethylene oxide and about one mole of a mixture of fractionated coconut oil fatty alcohols containing about 2% decyl alcohol, 66% lauryl alcohol, 23% myristyl alcohol and 9% cetyl alcohol
10 parts coconut oil fatty acid ester of sodium isethionate—"Igepon AC–78"
10 parts sodium alkyl phenol ethylene oxide ether sulfate containing an average of four ethylene oxide units per molecule and the alkyl radical having about 9 carbon atoms
10 parts sodium salt of a sulfated mixture of fractionated coconut oil fatty alcohols containing about 2% decyl alcohol, 66% lauryl alcohol, 23% myristyl alcohol and 9% cetyl alcohol

In this example also, propanol and isopropanol, can be substituted for the ethanol used as a solvent with substantially equal results.

Example II

An opaque liquid detergent composition was prepared as described in Example I from the following ingredients:

25 parts sodium coconut oil alcohol ethylene oxide ether sulfate described in Example I
4 parts sodium coconut oil alcohol glyceryl ether sulfonate described in Example I
3 parts sodium tallow alcohol glyceryl ether sulfonate described in Example I
8 parts coconut oil mono ethanol amide described in Example I
8 parts ethanol
2 parts sodium toluene sulfonate
12 parts sodium nitrate
38 parts water

The resulting composition was found to have outstanding sudsing and detergent properties in fine fabric and dishwashing as well as excellent opacity and stability. The product had a viscosity of about 400 centipoises at 70° F. and poured very easily.

Examples of suds promoting additives which can be used in the preparation of the detergent compositions of this invention, but which are not necessary, are the mono- and diethanolamides and isopropanolamides of coconut oil fatty acids.

Small amounts of perfumes and fluorescent brightening agents known in the art can be added to improve product appeal and performance. Since the opalescent sheen is the basic feature of the invention, dyes can be added to produce pastel shades which can greatly enhance the customer attraction to the product.

This invention results in a stable, efficient, light duty detergent with a highly desirable appearance.

It is intended mainly for dishwashing and the washing of fine fabrics but can also be used as a hair shampoo and as a detergent for laundry and other general household requirements.

What is claimed is:

1. An opaque liquid detergent composition consisting essentially of an aqueous vehicle containing in solution about 15% to about 40% of a water soluble anionic non-soap synthetic detergent sodium salt, said detergent salt comprising in part an amount of sodium alkyl glyceryl ether sulfonate with alkyl radicals ranging in chain length from C_{12} to C_{14} equivalent to at least 2% by weight of the composition, and suspended therein as a crystalline opacifying agent about 1% to about 9% of an alkyl glyceryl ether sulfonate sodium salt with alkyl radicals ranging in chain length from C_{16} to C_{18} and which is substantially insoluble in the composition at room temperature, said aqueous vehicle containing in solution from about 2% to about 20% sodium nitrate sufficient to provide a graining action for said opacifying agent thereby reducing the viscosity of said composition and sufficient to increase the specific gravity of said aqueous vehicle whereby the stability of said opacifying agent against gravitational separation is increased, said percentages being by weight of the composition.

2. An opaque liquid detergent composition consisting essentially of about 15% to about 40% of a dissolved water-soluble anionic synthetic detergent sodium salt selected from the group consisting of anionic sulfate and sulfonate synthetic detergents, said detergent salt comprising in part an amount of sodium alkyl glyceryl ether sulfonate with alkyl radicals ranging in chain length from C_{12} to C_{14} equivalent to at least 2% by weight of the composition, as an opacifying agent about 1% to about 9% of a suspension of sodium alkyl glyceryl ether sulfonate with alkyl radicals ranging in chain length from C_{16} to C_{18} and which is substantially insoluble in the composition at room temperature, 0% to about 15% of a water-soluble organic solvent selected from the group consisting of ethanol, propanol and isopropanol, and about 2% to about 20% dissolved sodium nitrate, said ingredients being in an aqueous vehicle and said percentages being by weight of the composition.

3. The detergent composition of claim 2 in which the opacifying agent is sodium alkyl glyceryl ether sulfonate in which the alkyl radicals are derived from a fatty alcohol derived by the reduction of tallow and the anionic synthetic detergent salt is selected from the group consisting of alkyl sulfate, alkyl benzene sulfonate and alkyl ethylene oxide ether sulfate having an average of three ethylene oxide units per molecule, the alkyl radical in said detergent salt having from about 8 to about 18 carbon atoms.

4. An opaque liquid detergent composition, consisting essentially of about 20% to about 35% of dissolved water-soluble anionic synthetic detergent sodium salt selected from the group consisting of anionic sulfate and sulfonate synthetic detergents, said detergent salt comprising in part an amount of sodium alkyl glyceryl ether sulfonate with alkyl radicals ranging in chain length from C_{12} to C_{14} equivalent to about 2% to about 10% by weight of the composition, as an opacifying agent about 2% to about 5% of a suspension of sodium alkyl glyceryl ether sulfonate with alkyl radicals ranging in chain length from C_{16} to C_{18} and which is substantially insoluble in the composition at room temperature, about 5% to about 10% of a water soluble organic solvent selected from the group consisting of ethanol, propanol and isopropanol, and about 6% to about 18% dissolved sodium nitrate, said ingredients being in an aqueous vehicle and said percentages being by weight.

5. The detergent composition of claim 4 in which the opacifying agent is sodium alkyl glyceryl ether sulfonate in which the alkyl radicals are derived from a fatty alcohol derived by the reduction of tallow and the anionic synthetic detergent salt is selected from the group consisting of sodium alkyl sulfate, sodium alkyl benzene sulfonate and sodium alkyl ethylene oxide ether sulfate having an average of three ethylene oxide units per molecule, the alkyl radical in said detergent salt having from about 8 to about 18 carbon atoms.

6. An opaque liquid detergent composition consisting essentially of about 25% sodium coconut oil alcohol ethylene oxide ether sulfate, about 4% sodium coconut oil alcohol glyceryl ether sulfonate, about 3% sodium tallow alcohol glyceryl ether sulfonate, about 8% coconut oil monoethanol amide, about 2% sodium toluene sulfonate, about 8% ethanol, about 12% sodium nitrate and about 38% water.

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