ABSTRACT OF THE DISCLOSURE

An aqueous pearlescent liquid detergent composition comprising organic detergent, inorganic alkaline builder or neutral salt, and a salt of pseudo cumene sulfonic acid.

This invention relates to new and outstanding liquid detergent compositions, and in particular to medium and heavy duty type liquid detergent compositions which, in addition to possessing excellent and outstanding detergent characteristics, are further characterized by an exceptionally desirable and esthetic opalescent or pearlescent appearance.

In the production of liquid detergent formulations, and most particularly in the manufacture of the medium and heavy duty types of liquid detergent preparations, it is necessary, in order to obtain the maximum detergency from a given formulation, to maintain the active ingredients in an "active" state. Such a state requires not only that the various active components be soluble in the carrier liquid, which is almost exclusively water, but that there be present a single homogeneous phase. A great deal of effort has been devoted to producing such homogeneity in the medium and heavy duty liquid detergent compositions. In the absence of homogeneity and phase unity, the various phases of the detergent formulation tend to separate creating, not only an undesirable condition from the appearance point of view, but a definite lessening of the efficiency of the cleansing power of the liquid detergent. Many attempts have been directed towards minimizing the tendency of the emulsion systems to separate into discrete phases—a tendency towards non-homogeneity—with the most successful being the use of thickening agents to increase the viscosity of the composition, which increase in viscosity acts to prevent the phase separation which is most apt to occur under normal conditions. The employment of thickeners also produces an opaque appearance in the emulsion system, which, however, rarely approaches the degree of opacity which is so desirable and most often necessary for consumer acceptance. Furthermore, the use of thickening agents, while not normally and usually an interference with the detergent characteristics of the compositions, rarely improves such properties.

Other techniques for increasing the opacity of the aforementioned detergent systems involve the use of insoluble solids which are in a fine state of subdivision. The substances heretofore employed in this manner have not been satisfactory, producing more serious problems than the specific one intended to be solved thereby.

It has now been discovered that a specific group of salts closely related, chemically, to the general class of hydrotrropic agents will function as outstanding opacifiers, and will result in an exceptionally superior pearlescent liquid detergent product when such salts are incorporated into the usual medium and heavy duty liquid detergent formulations. This development is, of course, completely unexpected in view of the fact that a hydrotrropic substance would be expected to perform in a manner diametrically opposed to that which would produce opacity, especially by virtue of the formation of finely divided insoluble material. Well known hydrotropes include benzene sulfonic acid salts, toluene sulfonphonic acid salts, xylene sulfonphonic acid salts, and even cumene sulfonphonic acid salts; therefore, it is apparent that the performance of trimethyl benzene sulfonphonic acid salts for producing opaque, pearlescent compositions is completely contra-indicated.

It is therefore an object of the present invention to provide new and outstanding liquid detergent compositions which are characterized by a visually, highly desirable opaqueness and pearlescence.

It is another object of this invention to provide new, useful, and outstanding liquid detergent compositions which have a most pleasing appearance, and which are highly efficacious for their intended cleansing function.

It is still another object of this invention to provide new, useful, and highly efficient opaque and pearlescent liquid detergent compositions.

It is still another object of the present invention to provide processes for attaining the aforementioned objects.

Other objects will appear hereinafter as the description proceeds.

The objects of the present invention are attained by incorporating into the liquid detergent formulation a trimethyl benzene sulfonphonic acid, and particularly, pseudo cumene sulfonphonic acid salts. It is essential, in order to obtain the opaque and pearlescent properties in the liquid detergent compositions, that the latter be of the medium or heavy duty types, or equivalent thereto in electrolyte makeup. In other words, the detergent compositions must contain water-soluble salts, preferably inorganic salts, which may be the conventional builders that are used in medium and heavy duty liquid detergent preparations. Usually, the inorganic builders are alkaline materials such as phosphates, silicates, carbonates and the like, and mixtures thereof. In the absence of such alkaline builders, as would be the situation with a light duty detergent composition, or where only minor amounts of alkaline builders are present, as would be the case with a light or medium duty liquid detergent formulation, there may be employed other salts, preferably neutral salts, and particularly, the water-soluble alkali metal, ammonium and substituted ammonium salts of such anions as nitrate, halide, sulphate and the like. Among the neutral salts, it is preferred to employ the alkali metal and ammonium nitrates. The medium and heavy duty liquid detergent compositions of the present invention include the conventional components found and generally used in such formulations.

The major ingredients of these compositions are:

(1) A surface active compound or a mixture of surface active agents,

(2) An alkaline builder, and

(3) Water.

Other functional materials may and are usually present in medium and heavy duty liquid detergent compositions, and these include:

(1) Soil suspending agents—these are generally water-soluble or hydrophilic polymeric substances such as the lower alkyl cellulose ethers, e.g., methyl cellulose and ethyl cellulose, hydroxalkyl cellulose ethers, e.g., hydroxyethyl cellulose, cellulose ethane sulfonphonic acid, cellulose glycocoll acid, carboxy lower alkyl cellulose compounds, e.g., sodium carboxy methyl cellulose, potassium carboxy methyl cellulose, sodium carboxy ethyl cellulose, sodium carboxy propyl cellulose, and the like, water-soluble or dispersible synthetic polymeric materials which may be homopolymers, copolymers, graft copolymers, terpolymers, interpolymer, and the like and are illustrated by polyvinyl pyrrolidone, polyvinyl alco-
hol, hydrolyzed polyvinyl acetate, polycrylic acid, polyacrylamide, maleic anhydride copolymers with alkyl vinyl ethers, e.g. methyl vinyl ether, natural products such as starch, and the like.

(2) Corrosion inhibitors.

(3) Sequestrants—e.g. ethylene diamine tetra-acetic acid, sodium gluconate, and the like.

(4) Foam stabilizers such as the higher fatty acid alkylolamides, and particularly those wherein the acyl radical contains from 8 to 18 carbon atoms and each alkyl group contains up to 3 carbon atoms. The monoenoalcanamides, diethanolamides, monoisopropanolamides, and thiodiisopropanolamides having from about 10 to about 14 carbon atoms in the acyl moiety are preferred.

(5) Brighteners—illustrative compounds may be found in the various well known general types of the more commonly used products. Such types which by no means limiting include the coumarin types, the triazolyl stilbene types, and the stilbene cyanuric types, the acylaminol stilbene types, and the like.

(6) Alcohols to improve the compatibility of the various components such as ethanol, propanol and isopropanol.

(7) Tarshin inhibitors such as ethylene thiourea.

(8) Germicides.

(9) Dyeing materials.

(10) Perfumes.

(11) Thickening agents.

(12) Hydrotopic agents, etc.

The surfactant materials which are usable in the detergent formulations of this invention include all of the non-ionic, organic, surface active, detergent substances, especially those which are normally employed in the washing of laundry and other soiled articles.

The nonionic and anionic surface active compounds comprise the two major classes of operable detergents materials. The nonionic surface active compounds, which are opacified, are generally the water-soluble products which are derived from the condensation of an alkylene oxide or equivalent reactant and a reactive-hydrogen hydrophobe. The hydrophobic organic compounds may be aliphatic, aromatic or heterocyclic, although the first two classes are preferred. The preferred types of hydrophobes are higher aliphatic alcohols and alkyl phenols, although others may be used such as carboxylic acids, carboxamides, mercaptans, sulfonamides, etc. The ethylene oxide condensates with higher-alkyl phenols represent a preferred class of nonionic compounds. Usually the hydrophobic moiety should contain at least about 6 carbon atoms, and preferably at least about 8 carbon atoms, and may contain as many as about 50 carbon atoms or more. The amount of alkylene oxide will vary considerably depending upon the hydrophobe, but as a general guide and rule, at least about 5 moles of alkylene oxide per mole of hydrophobe should be used. The upper limit of alkylene oxide will vary, also, but no particular criticality can be ascribed thereto. As much as 200 or more moles of alkylene oxide per mole of hydrophobe may be employed. While ethylene oxide is the preferred and predominating oxamollating reagent, other lower alkylene oxides such as propylene oxide, butylene oxide, and the like may also be used or substituted in part for the ethylene oxide.

Other nonionic compounds which are suitable are the polyoxyalkylene esters of the organic acids such as the higher fatty acids, the rosin acids, tall oil acids, acids from castor oil, palmitin, stearin, etc. These esters will usually contain from about 10 to about 22 carbon atoms in the acid moiety and from about 12 to about 30 moles of ethylene oxide or its equivalent.

Still other nonionic surfactants are the alkylene oxide condensates with the higher fatty acid amides. The fatty acid amides generally contain from about 6 to about 22 carbon atoms and this will be condensed with about 10 to about 50 moles of ethylene oxide as the preferred

illustration. The corresponding carboxamides and sulphonamides may also be used as substantial equivalents.

Still another class of nonionic products are the oxalkylated higher aliphatic alcohols. The fatty alcohols should contain at least 6 carbon atoms, and preferably at least about 8 carbon atoms. The most preferred alcohols are lauryl, myristyl, cetyl, stearyl and oleyl alcohols and the said alcohols should be condensed with at least about 6 moles of ethylene oxide and, preferably, about 10 to 30 moles of ethylene oxide. A typical nonionic product is oleyl alcohol condensed with about 15 moles of ethylene oxide. The corresponding alkyl mercaptans when condensed with ethylene oxide are also admirably suitable in the compositions of the present invention.

In addition to the surfactant which is illustrated above from the general class of nonionic compounds, there may also be present a nonionic higher fatty acid alkanoamides, which as pointed out above is employed as a foam stabilizer. These compounds also function to improve the detergency as well as, in many instances, sufficient foaming solubilization of the various ingredients in the liquid detergent formulation. Generally, where such compounds are used they are employed in amounts ranging from about 1% to about 15%, and preferably, from about 3% to about 12%, by weight of the total composition. Specific examples of suitable higher fatty acid alkanoamides are lauric monoenoalcanamides, myristic diethanolamide, lauric diethanolamide, capric monoenoalcanamide, lauric monoisoalcanamide, capric diisoalcanamide, and the like.

Specific exemplifications of other and similar suitable nonionic surface active materials of the alkylene oxide condensate type may be found in the following U.S. Patents: 1,970,578; 2,085,706; 2,205,021; 2,213,477; 3,060,124; 3,075,922; and 3,122,508 among many others. The anionic surface active agents which are useful and suitable in the compositions of the present invention include all of the well known anionic types, and particularly the anionic sulfonated and phosphpated types. The term "sulfonated" as used herein and in the claims refers to the materials having a sulfonate or a sulfate group, and is not limited to any specific or particular sulfonation or sulfation procedure, since any method of preparation may be used. The preferred salt forming cations are alkali metals, ammonium and substituted ammonium. The anionics, as with the nonionics, have a base hydrophobe, which may be an aliphatic or an aromatic compound of substantial molecular weight. Particularly effective nuclei are the alkylated aromatics, and more particularly, the alkylated benzene compounds wherein the alkyl moiety contains from about 8 to about 20 carbon atoms. The said alkyl substituent on the aromatic nucleus may be branched or straight chained.

Another suitable type of anionic detergent is the sulfated alkyl-phenol-alkylene oxide condensates. These condensates may have from 2 to about 30 moles of ethylene oxide as the preferred sub-group for each alkyl phenol moiety, with the preferred alkyls containing from about 6 to about 27 carbon atoms therein.

Still another class of anionics is represented by the normal and secondary higher alkyl sulfate detergents in the general class of the aliphatic sulfonate surfactants. Fatty alcohol precursors for these sulfate detergent which are particularly desirable are those having about 8 to about 15 carbon atoms in the fatty alcohol moiety. Others in this class which are suitable are the esters of polyhydric alcohols which are incompletely esterified with higher fatty acids, e.g. coconut oil monoglyceride monosulfate; the higher fatty acid esters of low molecular weight alkylol sulphonics acids, e.g. oleic acid ester of isethionionic acid; the higher fatty acid ethoxylamides sulfate; the higher fatty acid amidinotetraethoxysulfonic acids, e.g. N-Isotaurine salt; higher alkyl glyceryl ether sulfonates, e.g. dodecyl glyceryl ether
3,393,154

5 sulphonate; the oxyalkylated derivatives, particularly the ethylene oxide condensates of the aforementioned higher fatty alcohols and alcohol derivatives containing from about 2 to about 30 moles of ethylene oxide are also within the contemplation of the present invention. Specific mention of suitable compounds include the sulfated ester and salts thereof of lauryl alcohol condensed with 6 moles of ethylene oxide, propyloxyl alcohol condensed with 10 moles of ethylene oxide, and oleyl alcohol condensed with 6 moles of propylene oxide and then 15 moles of ethylene oxide.

Some U.S. patents which describe specific anionic surface active compounds including many of those types and specific compounds mentioned above are: 2,232,117; 2,232,118; 2,859,182; 2,941,950; 3,001,949; 3,060,124; 3,075,922; 3,122,508; and 3,192,166.

The amount of organic detergent compound may vary widely depending upon the specific nature and intended use of the liquid detergent formulation. In general, however, from about 5% to about 40% by weight thereof based on the total weight of the liquid detergent may be used, with the range of from about 5% to about 25% being preferred. Of the detergents substances employed it is desirable to have a major amount thereof selected from the class of anionic compound, particularly where the total amount of detergent present is above about 10% and there are also present large amounts of alkaline builders. In other words, in such situations, it is preferred that the amount of nonionic compound not exceed about 5% by weight based on the total weight of the liquid detergent composition. These considerations are governed primarily by compatibility and phase homogeneity and consequently larger amounts of nonionic compounds may be employed where these considerations are no problem or an unimportant one.

The use of a solubilizing agent, i.e., a hydrotropic compound or composition, may be indicated and/or desirable to effect the production of an homogeneous liquid detergent composition. These reagents are well known in the art and include, particularly, the aromatic sulfonates such as sodium benzene sulfonate, potassium benzene sulfonate, sodium tolune, sulfonate, sodium xylene sulfonates, potassium xylene sulfonates, and the like. The xylene sulfonates may be derived from any of the isomeric xylene compounds e.g. ortho xylene, meta xylene and para xylene. The commercial xylene sulfonates usually contain the meta xylene sulfonate as the main ingredient. Other suitable hydrotrones are the lower alkyl sulphate salts having 5 to 6 carbon atoms in the alkyl group such as the alkali metal n-amyl sulphate and n-hexyl sulphate. The conventional amount of hydrotrones varies from about 2% to about 15% by weight based on the weight of the entire composition, with a preference for an amount of from about 4% to about 10%, same weight basis. Other solubilizers, such as alcohols, have been previously referred to, and these may be used alone or in conjunction with the aforesaid hydrotrones.

Where alkaline builders are used, the general water-soluble types have been outlined earlier. In more detail, however, the preferred alkaline builders are polyphosphate salts which have the property of inhibiting the precipitation of alkaline earth materials, such as calcium and magnesium compounds, in aqueous media and of improving the performance of the liquid detergent product. The alkali metal salts, and most particularly, the potassium salts of the chain polyphosphates are usually employed. Examples of such compounds include: pentapotassium tripolyphosphate, potassium acid tripolyphosphate; tetraphosphatium pyrophosphate, potassium hexametaphosphate, potassium tetraborate, and the like. One may, of course, employ mixtures of these compounds as well as the sodium salts and mixtures therefrom. The phosphates are either crystalline substances or glassy, amorphous products. The latter are characterized by the molar ratio of the alkali oxide (i.e. KO or NaO) to POs in conjunction with the number of phosphorus atoms in the chain. Any water-soluble glassy polyphosphate with molar ratios of alkali oxide to phosphorus oxide of between about 5:3 and about 1:1 and an average chain length from 2 to several thousands is suitable as a builder in the compositions of the present invention.

Other alkaline builders may be used such as the soluble alkali metal silicates. These silicates may be employed as the sole builder or in any suitable combination with the aforesaid polyphosphates. Suitable silicates are those having an alkali oxide to silica ratio within the range of about 1:1 to about 1:4, and preferably from about 1:2 to about 1:3. Examples are sodium silicates having such indicated ratios as 1:2:35, 1:2:5, 1:3:2, 1:2:0, 1:1:6, and 1:1. These silicates are generally prepared and available as aqueous solutions in moderate concentrations.

The amount of alkaline builder, where used, may vary from about 5% to about 50% by weight based on the weight of the entire detergent composition, with the preferred range being from about 10% to about 25%, same basis. Generally the amount of alkaline builder will be determined by the maximum solubility thereof in the liquid formulation and the amount of builder desired for the prescribed purpose.

The following examples will serve to illustrate the present invention without being deemed restrictive thereof. In these examples, and the further description, parts are by weight unless otherwise indicated.

**EXAMPLE 1**

A heavy duty liquid detergent formulation having an opaque and pearlescent appearance is prepared as follows:

To 30 parts of hot water, at a temperature of 160° F., there are added the following ingredients:

- Sodium dodecyl benzene sulphonate
- Sodium pseudo cumene sulphonate
- Lauric diethanolamide
- Lauric isopropanolamide

There are then added 20 parts of tetrapotassium pyrophosphate (as a 50% aqueous solution) while vigorously stirring the mixture. A thick white emulsion results which has an exceptionally attractive, pearlescent appearance. The detergent emulsion is also very stable.

**EXAMPLE 2**

To the emulsion of Example 1, there is added 3% by weight based on the weight of the total composition of ethyl alcohol. The resultant product is a reduced viscosity, pearlescent, very visually attractive, stable heavy duty liquid detergent emulsion.

The compositions of Examples 1 and 2 are used to launder soiled garments in a standard 30 minute wash and spin dry cycle. A similarly soiled batch of garments is then washed with the same compositions as prepared in Examples 1 and 2 except that the sodium pseudo cumene sulphonate is omitted. The unanimous opinion of a panel of 5 persons is that the garments laundered with the compositions of Examples 1 and 2 are even somewhat cleaner than the garments laundered with the corresponding formulations which do not contain the critical sulphonate of the present invention.

**EXAMPLE 3**

A liquid detergent emulsion is prepared as in Example 1, and then there is added 1% by weight of a 40% aqueous sodium xylene sulphonate solution. The resultant emulsion is very similar in appearance to that of Example 2 and, further, is characterized by a similar reduction in viscosity vis-a-vis the formulation of Example 1.

**EXAMPLE 4**

Example 1 is repeated except that the anionic detergent compound, sodium dodecyl benzene sulphonate, is re-
placed in each instance by the following surface active compounds:
(A) Triethanolamine salt of dodecyl benzene sulphonic acid.
(B) Sodium decyl benzene sulphonate.
(C) Potassium dodecyl benzene sulphonate.
(D) Sodium cetyl benzene sulphonate.
(E) Sodium laurel sulphonate.
(F) Sodium hexadecyl benzene sulphonate.
(G) Ammonium sulphate salt of the condensate of nonyl phenol with 10 moles of ethylene oxide.
(H) Sodium sulphate salt of the condensate of o xo tri decyl alcohol with 6.5 moles of ethylene oxide.
(I) Sodium sulphate salt of the condensate of nonyl phenol with 5 moles of ethylene.
(J) Sodium tridecyl benzene sulphonate. The tridecyl substituent is an average based upon approximately equal numbers of propylene tetramer and pentamer present in the benzene nucleus.
(K) Sodium salt of the mixed mono- and di-phosphate esters of the alcohol produced from nonyl phenol condensed with 9 moles of ethylene oxide. The ester is prepared by reacting the nonionic precursor alcohol with P2O5 in the molar ratio of 2.7:1 of nonionic compound to phosphorous pentoxide. General methods for synthesizing these esters are described in U.S. Patents 3,004,056 and 3,004,057.

EXAMPLE 5
Example I is repeated using in place of the sodium salt of pseudo cumene sulphonic acid, the following salts:
(A) Potassium.
(B) Ammonium.
(C) Ethylamine.
(D) Isobutyllamine.
(E) Monoethanolamine.
(F) Diisopropanolamine.
The results obtained in this example as well as those obtained in the preceding example are all substantially equivalent in that very stable detergent emulsions are produced with an outstanding pearlescent appearance.

EXAMPLE 6
The procedure of Example I is again repeated using in place of lauric diethanolamide a mixed (1:1) lauric-myristic diethanolamide. The detergent emulsion which is formed is very similar to that of Example I.

EXAMPLE 7
The tetrapotassium pyrophosphate used in Example I is replaced by an equal weight of potassium nitrate. The resultant detergent emulsion has an appearance similar to the emulsion prepared in Example I.

EXAMPLE 8
Example 7 is repeated except that the potassium nitrate is replaced by ammonium nitrate. Comparable results are obtained.

EXAMPLE 9
A heavy duty liquid detergent formulation is prepared following the technique of Example I but employing the following ingredients:
Sodium tetradecyl benzene sulphonate 10 parts
Sodium nonyl phenol-ethylene oxide sulphate (average of 5 oxyethyl groups per nonyl phenol moiety) 6 parts
Lauric-myristic (70:30) isopropanolamide 7 parts
Sodium xylene sulphonate 6 parts
Potassium tolune sulphonate 2 parts
Sodium carboxymethylcellulose 0.2 parts
Hot water 30 parts
SPCS (Sodium pseudo cumene sulphonate) 7.5 parts

To the above solution there are added 20 parts (as a 50% aqueous solution) of tetrapotassium pyrophosphate while the entire mixture is being very vigorously stirred. An extremely stable emulsion results which has an exceptionally pleasing pearlescent appearance.

When the composition of this example is employed in a standard wash test as in Example 2, it performs admirably.

EXAMPLE 10
Example I is still once more repeated with the exception that the sodium pseudo cumene sulphonate concentration is varied from the approximate 8% thereof used in Example I. The various concentrations employed are as follows:

<table>
<thead>
<tr>
<th>Percent</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

In each instance an opalescent product is obtained with outstanding pearlescence being noted particularly within the range of 2 to 15%.

EXAMPLE 11
A heavy duty liquid detergent composition is prepared as follows:

<table>
<thead>
<tr>
<th>Parts</th>
<th>Sodium dodecyl benzene sulphonate</th>
<th>Sodium pseudo cumene sulphonate</th>
<th>Lauryl-myristyl diethanolamide (70:30)</th>
<th>Lauryl myristyl isopropanolamide (70:30)</th>
<th>Sodium nonyl phenol penta-ethoxamer sulphate (sodium sulphate salt of the alcohol derived from nonyl phenol condensed with 5 moles of ethylene oxide and containing 5 oxyethyl groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>7.5</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

There are then added 15 parts of tetrapotassium pyrophosphate. The latter is added as a solution of the said 15 parts in 15 parts of water, i.e., as a 50% solution in the manner of the preceding examples. In the earlier examples it is noted that 20 parts of the phosphate are used (except Examples 7 and 8) with 20 parts of water. In the instant example the concentration of the SPCS is about 12.5%. An excellent, stable, highly efficacious, pearlescent liquid detergent composition is forthcoming.

EXAMPLE 12
Example I is repeated except that 10 parts of the tetrapotassium pyrophosphate are replaced by 10 parts of potassium nitrate. An exceptionally attractive pearlescent product results.

EXAMPLE 13
A liquid detergent formulation is prepared containing the following ingredients:

<table>
<thead>
<tr>
<th>Percent</th>
<th>Sodium tridecyl benzene sulphonate</th>
<th>Coconut diethanolamide</th>
<th>Commercial sodium xylene sulphonate</th>
<th>Sodium silicate</th>
<th>Sodium carboxymethylcellulose</th>
<th>Ethanol</th>
<th>Sodium pseudo cumene sulphonate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>3</td>
<td>7</td>
<td>15</td>
<td>0.3</td>
<td>2.5</td>
<td>10</td>
</tr>
</tbody>
</table>

The balance of the composition is water. All of the components are mixed and vigorously stirred in the order indicated, except that the sodium silicate is added last. There are then added 10% by weight of potassium nitrate and 5% by weight of potassium hexametaphosphate. An excellently appearing, pearlescent emulsion results.
A liquid detergent composition is formulated of the following ingredients:

Percent

Sodium dodecyl benzene sulphonate 8
Sodium nonyl phenox y penta-ethoxamer sulphate 5
Tetrapotassium pyrophosphate 10
Commercial sodium xylene sulphonate 7.5
Potassium pseudo cumene sulphonate 10

The balance of the composition is water, and it is prepared similarly as the formulation of Example 1, adding the phosphate and an aliquot portion of water as the final addition, with vigorous stirring. An excellent pearlescent detergent composition results.

In the foregoing examples the amount of water employed in the various compositions has generally varied from about 45% to about 60%. It is clear, however, that the quantity of water present may be varied over a much wider range depending upon the specific nature of the final detergent composition and the concentration of active components it is desired to have present. In general, the amount of water may vary from about 25% to about 90%, with the range of 40% to about 75% being preferred in most instances.

Although the present invention has been described with reference to particular embodiments and specific examples, it will be clear and apparent to those skilled in the art that all variations and modifications herein suggested and clearly taught can be made without departing from the spirit and scope of the invention.

1. An opaque, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 40% by weight of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 5% to about 50% by weight of a water soluble inorganic alkaline builder salt, and
   (C) from about 1% to about 20% by weight of a water soluble salt of pseudo cumene sulphonamic acid, and
   (D) from about 25% to about 75% by weight of water.

2. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 40% by weight of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 5% to about 50% by weight of a water soluble inorganic alkaline builder salt selected from the group consisting of water soluble inorganic alkaline and neutral degready builder salts, and
   (C) from about 1% to about 20% by weight of a water soluble salt of pseudo cumene sulphonamic acid.

3. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 40% by weight of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 5% to about 50% by weight of a water soluble, inorganic, alkaline builder salt, and
   (C) from about 1% to about 20% by weight of a water soluble salt of pseudo cumene sulphonamic acid, the cation of said salt being selected from the group consisting of alkali metal and ammonium cations.

4. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 40% by weight of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 10% to about 25% by weight of a water soluble, inorganic, alkaline builder salt, and
   (C) from about 2% to about 15% by weight of a water soluble salt of pseudo cumene sulphonamic acid, and
   (D) from about 25% to about 75% by weight of water.

5. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 25% of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 10% to about 25% by weight of a water soluble, inorganic, alkaline builder salt, and
   (C) from about 2% to about 15% by weight of a water soluble salt of pseudo cumene sulphonamic acid, and
   (D) from about 25% to about 75% by weight of water.

6. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 25% of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 10% to about 25% by weight of a water soluble, inorganic, alkaline builder salt,
   (C) from about 2% to about 15% by weight of a water soluble salt of pseudo cumene sulphonamic acid, and
   (D) from about 25% to about 75% by weight of water.

7. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 25% by weight of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 10% to about 25% by weight of a water soluble, inorganic, alkaline builder salt, said salt being selected from the class consisting of phosphates, silicates and carbonates,
   (C) from about 2% to about 15% by weight of a water soluble salt of pseudo cumene sulphonamic acid, and
   (D) from about 25% to about 75% by weight of water.

8. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 25% by weight of a synthetic organic detergent selected from the group consisting of anionic and nonionic detergents and mixtures thereof,
   (B) from about 10% to about 25% by weight of a water soluble, inorganic, alkaline builder salt, said salt being selected from the class consisting of phosphates, silicates and carbonates,
   (C) from about 2% to about 15% by weight of a water soluble salt of pseudo cumene sulphonamic acid, the cation of said salt being selected from the class consisting of alkali metal and ammonium cations, and
   (D) from about 25% to about 75% by weight of water.

9. An aqueous, pearlescent liquid detergent composition consisting essentially of
   (A) from about 5% to about 25% by weight of a synthetic, organic, anionic detergent,
   (B) from about 10% to about 25% by weight of a water soluble, alkaline, phosphate builder salt,
   (C) from about 2% to about 15% by weight of a water soluble salt of pseudo cumene sulphonamic acid, and
   (D) from about 25% to about 75% by weight of water.
10. An aqueous, pearlescent liquid detergent composition consisting essentially of
(A) from about 5% to about 25% by weight of a synthetic, organic, nonionic detergent,
(B) from about 10% to about 25% by weight of a water soluble, alkaline, phosphate builder salt,
(C) from about 2% to about 15% by weight of a water soluble salt of pseudo cumene sulphonic acid, and
(D) from about 25% to about 75% by weight of water.

11. An aqueous, pearlescent liquid detergent composition consisting essentially of
(A) from about 5% to about 25% by weight of a synthetic, organic, anionic sulphonate detergent,
(B) from about 10% to about 25% by weight of a water soluble alkali metal polyphosphate,
(C) from about 2% to about 15% by weight of a pseudo cumene sulphonlic acid salt selected from the class consisting of alkali metal and ammonium salts, and
(D) from about 25% to about 75% by weight of water.

12. An aqueous, pearlescent liquid detergent composition consisting essentially of
(A) from about 5% to about 40% by weight of a synthetic, organic, anionic sulphonate detergent,
(B) from about 5% to about 30% by weight of a water soluble alkali metal polyphosphate,
(C) from about 1% to about 20% by weight of a pseudo cumene sulphonlic acid salt selected from the class consisting of alkali metal and ammonium salts, and
(D) from about 25% to about 90% by weight of water.

13. An aqueous, pearlescent liquid detergent composition consisting essentially of
(A) from about 5% to about 25% by weight of an alkyl aryl sulphonate detergent,
(B) from about 10% to about 25% by weight of a water soluble potassium polyphosphate,
(C) from about 2% to about 15% by weight of a pseudo cumene sulphonate salt selected from the class consisting of alkali metal and ammonium salts, and
(D) from about 40% to about 75% by weight of water.

14. An aqueous, pearlescent liquid detergent composition consisting essentially of
(A) from about 5% to about 25% by weight of a higher alkyl sulphate detergent,
(B) from about 10% to about 25% by weight of a water soluble potassium polyphosphate,
(C) from about 2% to about 15% by weight of a pseudo cumene sulphonate salt selected from the class consisting of alkali metal and ammonium salts, and
(D) from about 40% to about 75% by weight of water.

15. A composition as defined in claim 13 wherein the polyphosphate is tetrapotassium pyrophosphate.

16. A composition as defined in claim 1 wherein the inorganic salt is potassium nitrate.

17. A composition as defined in claim 3 wherein the neutral, inorganic, water soluble salt is potassium nitrate.

18. A composition as defined in claim 16 which includes from about 2% to about 15% by weight of a hydrotropic agent selected from the group consisting of benzene sulphonlic acid salts, toluen sulphonic acid salts, xylene sulphonlic acid salts, cumene sulphonlic acid salts, and alkyl sulphates containing from 5 to 6 carbon atoms.

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