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DETERGENT COMPOSITION

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Our invention relates to detergent compositions of matter. More particularly it relates to detergent compositions comprising so-called "non-soap detergent" as the principal detergent ingredient and which is herein referred to arbitrarily as the "active ingredient" of the compositions.

The active ingredient preferably comprises sulfo derivatives of higher fatty compounds which are efficacious in their detergent action in an acid solution, although they may be effective also in neutral or slightly alkaline solutions. Such compounds may be distinguished from the so-called non-soap detergents that react alkaline in solution or that tend to be less effective in said solutions.

In addition to such an active ingredient, our compositions include one or more materials that act to enhance the detergent action of the composition and solutions of the same and to impart thereto other desirable physical or chemical properties.

The word "detergent" is employed herein in its generic sense to include any compound or composition having a cleaning action; the word "non-soap" is intended to cover compounds other than alkali metal and other metallic salts of higher fatty acids.

It is an object of our invention to provide a non-soap detergent composition having optimum detergent properties, and at the same time having properties that will make its use desirable and pleasant.

Our compositions are intended primarily for use with water as a detergent, and comprise compositions for cleaning human tissue as well as for laundering and washing operations of various types. The compositions also have wetting and dispersing properties that suggest their use in the textile and dyeing industries and in other related arts where wetting agents are desirable. While the compositions are described with reference to their use as a detergent, because it is expected that their detergent action will usually be availed of, this is not intended to preclude their use for other purposes.

The active ingredient in our compositions is stable in either an acid or an alkaline solution, and the acidity or alkalinity of solutions containing the same may be varied depending upon the purpose for which the composition is to be used. The active ingredient is particularly effective as a detergent, however, when employed in an acidic solution.

It is therefore an object of our invention, in

providing a composition intended primarily for use as a detergent, to include in the composition an acid or an acid salt, which we refer to as an "activator," for the purpose of imparting to the solution a hydrogen ion concentration (pH value) at which the active ingredient is efficacious in its detergent action.

At the present time and for long periods of time previously, soap has been regarded as the most common detergent. Indeed, there are few people who are not intimately acquainted with the action and particularly, the physical properties of a soap solution, for example, its characteristic "slippery" feel and its "sudsing" properties. Because the public has been associated for so long with soap as the principal common detergent, and has become so thoroughly accustomed to its properties, there is a tendency on the part of the public to associate the physical properties of soap with its cleaning action, and to evaluate any other cleaning material by associating and comparing its properties with those of soap.

For example, soap is invariably employed in a slightly alkaline solution, because a solution of pure soap is slightly alkaline and many soap compositions also contain a small amount of a stronger alkaline material. Due to the fact that soap solutions are always alkaline, and as a result of their alkalinity invariably have a slippery feel, there has been created in the public's mind an association of slipperiness with detergent action. While such slipperiness is not necessarily a requisite of detergency, and although the active ingredient included in our compositions need not and preferably is not used in an alkaline medium, nevertheless, this association of slipperiness with cleaning ability has become so firmly entrenched that the public regards slipperiness as an essential property of a good detergent.

Detergents of the non-soap type which have been made available commercially have not had the desired characteristics of slipperiness notwithstanding that such detergents are only effective in alkaline media normally associated with slipperiness. To this extent such detergents are less desirable than soap to the consumer. In general, with non-soap detergents relatively small amounts, as compared with soap, are necessary to obtain desirable results and this may possibly be a factor in the noted deficiency in the slipperiness characteristic. In operating with active ingredients of the type disclosed herein, we have similar problems as to slipperiness, and further have an added problem in view of the fact that

active ingredients of the type we propose to use reach their greatest effectiveness in an acid medium. However, as a result of our invention we have obtained a detergent composition of the desired slipperiness in addition to other highly desirable characteristics.

It is, therefore, a further object of our invention to provide a composition, which when employed with water, will impart to the solution the desired slippery feel that is regarded as a characteristic of a good detergent composition, while at the same time, maintaining the desirable hydrogen ion concentration referred to hereinbefore.

As an additional example of this association, the sudsing properties of a soap solution are generally regarded in the public's mind as having a direct relation to cleaning properties. These two properties are not necessarily dependent, and a detergent composition containing an active ingredient of the type employed in accordance with our invention may be used as an efficacious detergent under such conditions that it does not produce a particularly good sudsing action. Nevertheless, due to the public's common appraisal of cleaning ability in terms of sudsing properties, a composition is apt not to be favorably received by the public unless it has good sudsing properties along with its good detergent action.

It is an object of our invention, therefore, to provide a detergent composition which has good sudsing properties in addition to the properties heretofore mentioned.

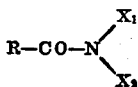
Due to the fact that the composition reaches its maximum effectiveness in relatively dilute solutions and because no portion is made ineffective by the hardness of water, it is possible to use a smaller quantity than is customary when soap is used in a similar washing or laundering operation. Because people have so long been in the habit of using soap as the common detergent, they would be likely, through force of habit, to employ a non-soap detergent composition in an amount similar to the amount of soap used under comparable circumstances. To do so would be exceedingly wasteful of the non-soap detergent and expensive.

It is an additional object of our invention, therefore, to produce a product suitable for general use, and containing in addition to the active ingredient other ingredients which will give bulk to the mass, so that substantially the same amount or volume of the final product may be used to obtain substantially the same detergent capacity as from an equal amount or volume of soap.

In most instances, the materials to be added to the composition for securing this bulking effect are those which are employed as the activator, to enhance the sudsing properties, and to impart the slippery feel. In some instances other ingredients may be added for the purpose of imparting bulk.

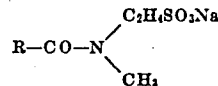
The active ingredient employed in our composition may be any of the so-called non-soap sulfonated or sulfated wetting agents or detergents that are particularly efficacious in their detergent action in an acid solution, that is, a solution having a pH value of not over 7.

The higher fatty amides are illustrative of such compounds. They have the general formula

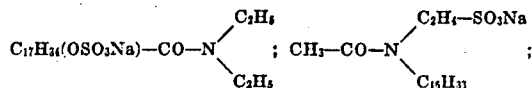
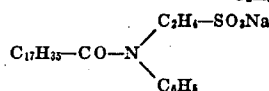


in which R is an aliphatic, an aliphatic-aromatic, or cyclo-aliphatic radical, in which X₁ is hydrogen or a radical denoted by R, and in which X₂ is hydrogen or a radical denoted by R, or if X₁ is a radical denoted by R, X₂ may be an aromatic radical, said compound having a total number of carbon atoms of at least 8 and containing at least one sulfuric or sulfonic acid group the hydrogen of which may or may not have been replaced by a metal to form a corresponding sulfate or sulfonate group.

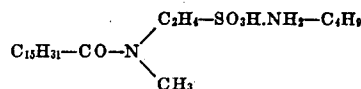
Examples of such compounds are the alkyl taurides, such as



Additional examples of this general type are as follows:



and



Additional compounds that may be used as the active ingredient are those obtained by condensing a higher fatty acid with an alkali metal salt of a hydroxy alkane sulfonic acid. These condensation products are known as oxyethanes and are so designated hereinafter. For example, a product known as myristic oxyethane which is obtained by condensing myristic acid and the sodium salt of hydroxy ethane sulfonic acid, followed by neutralization. The chemical name for the myristic oxyethane is probably beta-sulfoethyl myristate sodium salt or myristyl ester of the sodium salt of isethionic acid. Other compositions containing a sulfonate or sulfated group, which have desirable detergent properties in an acidic solution, are well known in the art and include the sarcoside type of non-soap detergents, which are condensations of fatty acids and sarcosine, and have the general formula



the metanilide type, which are condensation products of fatty acids with metanilic acid, and have the general formula $\text{R}\cdot\text{CO}\cdot\text{NH}\cdot\text{C}_6\text{H}_4\cdot\text{SO}_3\text{Me}$; and condensation products of fatty acids and ethanolamine sulfate having the general formula $\text{R}\cdot\text{NH}\cdot\text{CH}_2\cdot\text{CH}_2\cdot\text{SO}_4\text{Me}$. All such compounds are to be included within the genus herein defined as a non-soap detergent having efficacious detergent properties in an acid solution.

While any of the above mentioned compounds may be used as the active ingredient in our composition to secure good results, we have found that certain compounds and mixtures of compounds are somewhat superior to others.

The taurides of saturated fatty acids having 14 to 16 carbon atoms or above possess somewhat better lathering and grease or dirt dispersing properties than are possessed by the taurides of oleic and lauric acids. Any one of the higher fatty acid taurides having 14 to 16 carbon atoms or more may be used alone or in admixture. An

active ingredient comprising myristic methyl tauride and palmitic methyl tauride is unusually effective because the former contributes excellent sudsing properties and the latter contributes excellent detergency. This is particularly noticeable when the active ingredient is used in combination with the activator and the alkaline agent for imparting a slippery feel.

The taurides are effective in giving an immediate detergent action, even in very low concentrations, and for this reason it is desirable that the composition include at least a portion of a tauride.

The oxyethanes referred to hereinbefore are compounds having a low solubility and are also desirable. They may be used alone or in combination with other non-soap detergents. In general the oxyethanes possess better detergent properties when used at higher concentrations, and an increase in the proportion of the oxyethane produces a proportionate increase in detergent action. This is not true of all non-soap detergents.

We have found that a combination of myristic oxyethane and taurides of palmitic and myristic acid is a particularly effective active ingredient in a composition adapted for general detergent purposes. Tests have demonstrated, for example, that when this combination is used particularly in low concentrations it unexpectedly gives more effective results than when either of the ingredients are used alone. A possible explanation may be that the taurides tend to give an immediate dispersing effect with soil or dirt, and the oxyethanes tend to hold the soil suspended. The fact that the oxyethane is somewhat sensitive to calcium also adds to the effectiveness of the combination. Immediate sudsing and detergency is obtained with this combination and detergency is retained and increased by the use of additional amounts.

The reference to a solution of our detergent composition is intended to be generic to both a true solution and a colloidal solution, inasmuch as some of the ingredients may possibly be present in a colloidal phase, particularly the higher molecular weight compounds and the calcium salts thereof.

The proportion of the active ingredient in the composition is not critical and is determined by the detergent action required for a given amount of the composition. In general, the proportion is such that when the composition is used in an amount comparable to the amount of soap that would be employed under similar circumstances, the detergent capacity will be of the same order. When the composition is in a powdered or flaked form this proportion will depend also on the density of the composition because a composition of lower density will require a larger relative proportion of the active ingredient to secure the same detergent capacity for a given volume of the composition. In a spray dried product having a specific gravity of about 0.1 to 0.3 the proportion will be in the order of 10% to 50%, preferably about 12% to 30%. The remainder of the composition comprises the activator, the alkaline agent for imparting the slippery feel, other bulking agents if desired, and relatively small quantities of inert diluents.

The materials to be used as the activator for imparting to the solution the desired hydrogen ion concentration or pH value may be any acid or acid salt that is stable under the existing conditions, for example, mineral acids such as sul-

phuric acid, or boric acid; organic acids such as oxalic acid, acetic acid, citric acid, and tartaric acid; and acid salts such as mono-sodium dihydrogen phosphate, sodium acid sulfate, di-sodium di-hydrogen pyrophosphate.

The proportion of the activator to be employed will depend upon and is determined by the acidity of a solution of the composition at the concentration normally employed. In general, the proportion of the activator to be employed is that which will impart to the solution a pH value of not more than 7, preferably between 6 and 7, although the pH range of the solution may be as low as 3. The proportion of the activator will depend somewhat on the concentration of the composition in the solution, because this affects the pH value of the solution. The solutions of our composition when used for detergent purposes, will usually contain between 0.01% and 1% of the composition, and preferably 0.1% to 0.5%. The proportion of the activator is such as to give the desired pH value to the solution when the composition is used in a concentration normally preferable for the type of detergent action for which the composition is intended.

The proportion of the activator will also depend, as will be seen hereinafter, on the proportion of the alkaline agent employed to impart the slippery feel, and on other factors to be discussed; it is therefore impossible to define the proportion of the activator except in terms of the pH value of the solution of the composition.

As we have pointed out heretofore, it is known that alkaline solutions such as solutions of sodium hydroxide, sodium carbonate or tri-sodium phosphate, possess a characteristic slippery feel, and that this sensation is also possessed by soap solutions.

We have discovered that if there is included in our composition with the active ingredient, any alkaline salt, such as tetrasodium pyrophosphate, trisodium phosphate, or borax, a solution of the composition has the characteristic slippery feel associated with soap.

We have also discovered that a sufficient amount of the activator may be employed so that the solution of the detergent containing the alkaline salt may be buffered at the same time to a pH value of not more than 7 without destroying the slippery feel. As a result, the solution has an acidity at which the active ingredient is particularly efficacious in the detergent action, and at the same time possesses the slippery feel imparted by the alkaline salt, even though the composition may be on the acid side as indicated by the pH value.

As a result of our invention it is now possible to have present in a detergent composition several particularly desirable characteristics. For example, the acidity is adjusted when the detergent goes into solution to such a pH that efficacious detergent action results. A slippery feel is given to the solution by the composition, and thus the psychological demand of the public that a detergent solution have such a slippery feel is satisfied. Furthermore, the activator and the alkaline salt both impart bulk to the composition so that the quantity of the composition used in washing operations is comparable to the quantity of soap the public is accustomed to use, as has been described heretofore.

While any alkaline salt may be used, we have discovered that the use of alkaline phosphates is particularly desirable because these compounds, particularly the tetrasodium pyrophosphate, en-

hances the detergent action, due probably, in part at least, to the relatively high negative valency of the phosphates which assists in dispersing dirt and oil particles. In addition, the compositions containing the phosphates have improved sudsing properties which render them more appealing to the public as detergent compositions.

The amount of the alkaline salt necessary to impart the slippery feel will depend somewhat on the alkalinity of the salt and the extent of the slippery feel desired. In some instances, for example, when the composition is to be used on human tissue, it may be desirable to have little more than a suggestion of a slippery feel, in which event relatively small amounts of the alkaline salt will be employed. If the detergent composition is to be used for ordinary laundering operations, where a highly alkaline soap has been used in the past and in operations in which the public is accustomed to a solution having a decided slippery feel, it will be desirable to include a relatively large proportion of the alkaline salt and the salt selected should preferably have a high degree of alkalinity.

Many alkaline salts, for example, certain phosphates, react with the calcium and magnesium, as well as iron and other salts in hard water to form a precipitate. In the case of tetrasodium pyrophosphate, the precipitate that is first formed may be redissolved by an excess of tetrasodium pyrophosphate and the calcium and magnesium sequestered in a little ionized compound. In our compositions in which tetrasodium pyrophosphate is employed as the alkaline salt, the amount of the latter must be sufficient at least to impart a slippery feel to the solution; it need not be greatly in excess. It is not essential that such an excess be employed as to redissolve the precipitate and sequester all the calcium and magnesium. In fact, the precipitate, being in an extremely finely divided or colloidal form, may assist in the detergent action by forming nucleating points for the dirt and fat to be dispersed by the detergent. If it is preferred, however, that the calcium and magnesium of the hard water be present in the sequestered state, for example, in instances where a clear solution is desired, a sufficient quantity of the tetrasodium pyrophosphate can be included in the composition for accomplishing this action. The proportion of the alkaline salt in the composition, therefore, will depend to some extent on the type and the extent of the reaction between the alkaline salt and the hardness of the water.

It will be obvious from the above considerations, that it is impossible to define the relative proportion of the alkaline salt employed in accordance with our invention, except in terms of an amount which will produce the desired slippery feel.

We have mentioned heretofore that the proportion of the activator will depend upon the proportion of the alkaline salt employed. Inasmuch as the proportion of the activator is such that the desired pH value is obtained when the composition is employed in the concentration intended, the proportion of the activator must be increased when a larger proportion of alkaline salt is employed. The relative proportions will also depend on the acidity of the particular activator and the alkalinity of the particular alkaline salt included in a composition.

Because of the reaction of the alkaline salt in our composition in precipitating or sequestering

the hardness of the water, a portion of the alkaline salt will be used for this purpose, and, therefore, will not be available for imparting alkalinity and a slippery feel to the solution. It will be apparent, therefore, that the proportion of the alkaline salt for imparting a given desired slippery feel, will vary somewhat depending upon the hardness of the water in which it is included. It also follows that in a composition having a given amount of alkaline salt, the hardness of the water will be a factor that affects the pH value of a solution because different waters of different hardness will remove different amounts of the alkaline salt as a precipitate.

In the above discussion, and in the following examples and claims, the pH values are given with reference to a hard water having a hardness of 300 parts per million. Some of the compositions which are compounded to have an alkalinity not materially below 7 in a water of a hardness of 300 p. p. m. will produce a pH value slightly above 7 when employed in a very soft water or in a distilled water. For this reason, it will be preferable to compound the composition so as to have a pH value below 7 in water having the hardness usually encountered; when it is known that the composition will be used in a very soft water it is desirable to adjust the proportions of alkaline salt and activator so that a pH value of not over 7 will be obtained.

It will be apparent therefore for all of the reasons heretofore mentioned that it is impossible to define the amount of the activator, or the relative proportions of the activator and the alkaline salt, except as those amounts which will produce the desired pH value in a solution of a particular composition in a given concentration in water of a particular hardness.

In accordance with our invention, the following examples are given merely as illustrative and not as limiting in any way the generic scope of the invention heretofore defined.

Example I

	Per cent
Active ingredient.....	20
Tetrasodium pyrophosphate.....	45
Sodium di-hydrogen phosphate.....	17.5
Di-sodium phosphate.....	4.5
Sodium chloride.....	5.5
Starch	5
Moisture, etc.....	2.5

The active ingredient may be any of the class heretofore defined, preferably the methyl taurides of myristic and palmitic acids in equal proportions.

The tetrasodium pyrophosphate acts as the alkaline agent for imparting the slippery feel to the solution and the sodium di-hydrogen phosphate acts as the activator.

The di-sodium phosphate is but slightly alkaline and therefore does not materially affect the action of the other ingredients. It is of assistance in adding bulk to the product and augments the pyrophosphate, to a small extent, in imparting the slippery feel. It also improves the detergent and sudsing properties, characteristics common to the phosphates as a class.

The sodium chloride is present in most active ingredients, as they are manufactured under commercial processes, to such an extent that it is present in the finished composition in the proportion of 5 to 8%. It acts merely as a diluent and is therefore desirable for imparting bulk to

the product without detracting in any way from the desirable properties imparted by any of the other ingredients.

The starch is added in order to minimize the breakage of the individual particles of the composition that may occur during handling. It also appears to strengthen the detergent film.

Example II

	Per cent
Active ingredient.....	20
Tetrasodium pyrophosphate.....	45
Sodium di-hydrogen phosphate.....	22
Sodium chloride.....	5.5
Starch.....	5
Moisture.....	2.5

In this example the ingredients are employed for the same purpose as set forth in connection with Example I.

Example III

	Per cent
Active ingredient.....	20
Trisodium phosphate.....	27
Sodium bisulfate.....	40
Starch.....	5
Moisture, salt, etc.....	8

In this example the trisodium phosphate acts as the alkaline salt to impart the slippery feel; the sodium bisulfate acts as the activator, and the remainder of the ingredients are present for the same purpose as in the other examples.

Example IV

	Per cent
Active ingredient.....	12
Tetrasodium pyrophosphate.....	51
Sodium acid sulfate.....	25
Starch.....	5
Moisture, salt, etc.....	7

Example V

	Per cent
Active ingredient.....	30
Tetrasodium pyrophosphate.....	18
Sodium acid sulfate.....	9
Sodium sulfate.....	30
Starch.....	5
Moisture, salt, etc.....	8

The active ingredient in this example is preferably 55% myristic oxyethane and 45% palmitic methyl tauride. The neutral sodium sulfate is primarily a diluent. The preferred specific gravity of this composition is between .15 and .20 when spray dried.

Example VI

	Per cent
Active ingredient.....	20
Tetrasodium pyrophosphate.....	30
Sodium bisulfate.....	37
Starch.....	5
Moisture, salt, etc.....	8

Example VII

	Per cent
Active ingredient.....	12
Tetrasodium pyrophosphate.....	45
Sodium bisulfate.....	31
Starch.....	5
Moisture, salt, etc.....	7

The active ingredient in the above examples may be any of the compounds of the class heretofore defined and is preferably a mixture of taurides and oxyethanes.

The above compositions may be prepared in

any form, such as liquid, cake, powder, or flakes. In making a spray-dried product of the specific gravity referred to heretofore, the composition is made into a slurry containing 50% to 60% water and sprayed in the known manner.

The compositions described in the above examples will all produce a solution having a slippery feel. All of such solutions, in concentrations ordinarily used, will have a pH value of not over 7. For example, a 0.1% solution of the composition described in Example IV has a pH value of 6.0, and a 0.47% solution of the same composition has a pH value of 6.55. A 0.1% solution of the composition described in Example V has a pH value of 6.76, and a 0.28% solution of the same composition has a pH value of 6.67. Solutions of the same concentration or the compositions described in Examples III, VI and VII have pH values of 6.12, 3.19, and 5.58, respectively, and illustrate the wide variations in compositions within our invention.

The relative proportions of the alkaline salt and the activator may be varied over wide ranges and are not critical. The proportions given in the above examples, therefore, are merely illustrative. For example, a non-soap detergent composition similar to any of the examples but containing 27% tri-sodium ortho-phosphate and 40% sodium acid sulfate has a pH value of 6.12 when employed in a 0.2% solution. When 30% tetrasodium pyrophosphate and 37% sodium acid sulfate are contained in a similar composition, a 0.2% solution has a pH value of 3.2. When 45% of the tetrasodium pyrophosphate and 31% of the sodium acid sulfate are used in a similar composition, a .2% solution has a pH value of 5.6. These relative proportions of the alkaline salt and the activator that will produce a given pH value in solution will also depend, in addition to the factors heretofore mentioned, to some extent on the other ingredients in the composition; for example, to maintain a pH of 6 to 7, the ratio of alkaline salt to activator in the composition of Example IV should be 1.75 to 2.25; in the composition of Example V the ratio may vary between 1.25 and 3.0.

In all of the above solutions, water having a hardness of 300 P. P. M. was employed, as described previously.

It is obvious that many variations may be made in the ingredients and in their proportions without departing from our invention, and we intend all such variations to be included in our invention as defined in the following claims.

We claim:

1. A non-soap detergent composition of matter comprising a non-soap detergent active ingredient selected from the group consisting of higher fatty sulfonated amides and higher fatty isethionates, an alkaline alkali metal phosphate to impart a slippery feel to a solution containing said composition in a concentration ordinarily used in detergent operations, and an acidic compound in an amount to impart to said solution of the composition a pH value of not over 7.

2. A non-soap detergent composition of matter comprising a non-soap detergent active ingredient selected from the group consisting of higher fatty sulfonated amides and higher fatty isethionates, tetrasodium pyrophosphate to impart a slippery feel to a solution containing said composition in a concentration ordinarily used in detergent operations, and an acid salt to impart to said solution of the composition a pH value of not over 7.

3. A non-soap detergent composition of matter comprising higher fatty alkyl taurides, an alkaline alkali metal phosphate to impart a slippery feel to a solution containing said composition in a concentration of 0.1% to 1%, and an acidic compound in an amount to impart to said solution of the composition a pH value of not over 7.

4. A non-soap detergent composition of matter comprising taurides of palmitic and myristic acids, an alkaline alkali metal phosphate to impart a slippery feel to a solution containing said composition in a concentration ordinarily used in detergent operations, and an acidic compound for the purpose of imparting to said solution of the composition a pH value of not over 7.

5. A non-soap detergent composition of matter comprising taurides of palmitic and myristic acids, tetrasodium pyrophosphate to impart a slippery feel to a solution containing said composition in a concentration ordinarily used in detergent operations, and an acid sulfate to impart to said solution of the composition a pH value of between 6 and 7.

6. A non-soap detergent composition of matter comprising taurides of palmitic and myristic acids, tetrasodium pyrophosphate to impart a slippery feel to a solution containing said composition in a concentration ordinarily used in detergent operations, and an acid phosphate to impart to said solution of the composition a pH value of between 6 and 7.

7. A non-soap detergent composition of matter comprising substantially equal amounts of the

alkyl taurides of palmitic and myristic acids, an alkaline alkali metal phosphate to impart a slippery feel to a solution containing said composition, and an acid salt to impart to said solution of the composition a pH value of not over 7.

8. A non-soap detergent composition of matter comprising 10% to 50%, based on the entire composition, of a mixture of substantially equal amounts of the methyl taurides of palmitic and myristic acids, tetrasodium pyrophosphate to impart a slippery feel to a solution containing said composition in a concentration of 0.1% to 1%, and an acid salt to impart to said solution of the composition a pH value of between 6 and 7.

9. A non-soap detergent composition of matter comprising an alkyl tauride of a higher fatty acid and a higher fatty acid isethionate, tetrasodium pyrophosphate to impart a slippery feel to a solution containing said composition, and an acid salt to impart to said solution of the composition a pH value of not over 7.

10. A non-soap detergent composition of matter comprising an alkyl tauride of a higher fatty acid and the condensation product of a higher fatty acid and a sodium salt of an hydroxy alkane sulfonic acid, an alkaline alkali metal phosphate to impart a slippery feel to a solution containing said composition in a concentration ordinarily used in detergent operations, and an acidic compound in an amount to impart to said solution of the composition a pH value of not over 7.

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