

[54] **DETERGENT-SOFTENER COMPOSITIONS CONTAINING ESTERS OF DICARBOXYLIC ACIDS AND POLYHYDROXY TERTIARY AMINES**

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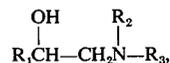
[57] **ABSTRACT**

[73] **Assignee:** Colgate-Palmolive Company, New York, N.Y.

A detergent composition having inherent softening properties consisting essentially of a builder salt and a detergent selected from the group consisting of water soluble esters of dicarboxylic acids and polyhydroxy tertiary amines having the structural formula:

[22] **Filed:** Dec. 6, 1971

[21] **Appl. No.:** 205,290



[52] **U.S. Cl.:** 252/8.8; 117/139.5 CQ; 252/529; 252/546; 252/548

wherein R<sub>1</sub> is a monovalent hydrocarbon radical of 8 to 24, preferably 10 to 20 carbon atoms; R<sub>2</sub> is an alkyl or alkylol radical containing 1 to 6 carbon atoms, and R<sub>3</sub> is an alkylol radical containing 1 to 6 carbon atoms, and salts thereof. The reaction mixture consists of mono-, di-, and/or tri-esters depending on the number of reactive hydroxyl groups in the alcoholamine and the amount of dicarboxylic acid utilized. Since the aforedefined esters and salts thereof uniquely possess both detergency and softening properties, they may constitute the sole detergent ingredient in the composition, although the presence of other detergents is not precluded.

[51] **Int. Cl.:** D06m 13/20

[58] **Field of Search:** 252/8.8, 525, 529, 544, 252/546, 548; 117/139.5 CQ

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**15 Claims, No Drawings**

## DETERGENT-SOFTENER COMPOSITIONS CONTAINING ESTERS OF DICARBOXYLIC ACIDS AND POLYHYDROXY TERTIARY AMINES

This invention relates to novel detergent compositions containing esters of dicarboxylic acids and 2-hydroxy alkyltertiary alcohol-amines and salts thereof as the essential ingredient. It has been discovered that said compounds are useful surface active agents and are substantive to a variety of fibrous materials. Thus, they may be used as emulsifiers, solubilizing agents for lipophilic materials, wetting agents, detergent and softeners for textiles and hair.

Since the introduction of commercial synthetic organic detergents and emulsifiers to replace the conventional watersoluble higher fatty acid soaps, much research work has been performed in an effort to improve such compounds and compositions including them, with the object of obtaining better and more convenient laundering of textiles. As a result, a wide variety of types of surface active agents and detergents have been produced and many such compositions have been manufactured commercially and have been introduced to the market place. As better products were made, the goals set for researchers on detergency were increased and the properties of the desired products were such as to have been thought impossible of attainment only a few years before. Although the cleaning function of surface active materials is still very important and products which clean better than competitive compounds are always in demand, additional attributes of cleaning compounds were desired. For example, with the increasing importance of cold water washing, detergent compositions were desired which would be capable of successfully cleaning and whitening textiles and laundry in cold water, as well as in hot water. Such washing capability is of importance in making a product acceptable for the washing of wool and other shrink-sensitive materials. In addition, softening agents have been found to be a desirable and in some instances, a necessary ingredient in the washing of textiles. However, because of the incompatibility of softeners and detergents, it has been necessary to utilize the textile softener in the final rinse as a separate step in a washing cycle. The objections to this procedure are obvious; one must be present during the washing cycle and few washing machines include devices for the addition of softeners in the final rinse.

Accordingly, it has long been the desire of the detergent industry to develop a detergent composition possessing detergency and fabric softening characteristics.

It has now been discovered in accordance with the present invention that detergent compositions comprising certain esters of dicarboxylic acids and 2-hydroxyalkyl tertiary alcohol amines and salts thereof in conjunction with water soluble detergency builder salts possess all of the characteristics desired. Thus, in this respect it has been discovered that the aforedefined esters possess not only exceptional detergency characteristics, but possess fabric softening characteristics and are completely compatible with conventional water soluble detergency builder salts. Thus, the combination of the present invention comprising the esters of dicarboxylic acids and 2-hydroxy alkyl alcoholamines and the conventional water soluble detergency builder salts can be produced both as a homogeneous single phase liquid detergent composition or can be

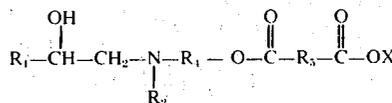
conveniently prepared in the form of bars, flakes, granular or tableted granular compositions.

Accordingly, it is an object of the present invention to provide novel detergency compositions wherein the detergent component thereof possesses, in addition to detergency characteristics, fabric softening characteristics, and is completely compatible with conventional water soluble detergency builder salts.

Still further objects and advantages of the novel detergent composition of the present invention will become more apparent from the following more detailed description thereof.

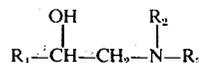
In accordance with the present invention, it has now been discovered that certain esters of dicarboxylic acid and polyhydroxy tertiary amines and salts thereof possess the unusual characteristics of excellent detergency and fabric softening ability in addition to complete compatibility with water soluble detergency builder salts conventionally employed in detergent compositions. Accordingly, the present invention is directed to such detergent compositions based upon esters of dicarboxylic acids and 2-hydroxy alkyl tertiary alcoholamine and water soluble detergency builder salts.

The esters of dicarboxylic acids and 2-hydroxyalkyl tertiary alcohol amines employed in the novel detergent compositions of the present invention possess both detergency and fabric softening ability and consist predominantly of the mono-ester having the formula:

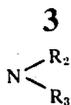


wherein  $\text{R}_1$  is a monovalent hydrocarbon radical of 8 to 24 and preferably 10 to 20 carbon atoms,  $\text{R}_2$  is an alkyl or alkylol radical of 1 to 6 carbon atoms,  $\text{R}_4$  is a divalent hydrocarbon radical of 1 to 6 carbon atoms ( $\text{R}_4-\text{OH} = \text{R}_3$ );  $\text{R}_5$  is a saturated, unsaturated, aliphatic or aromatic divalent hydrocarbon radical (residue of the dicarboxylic acid), X is hydrogen or a salt-forming element or radical. If X is an element it is preferred that it should be an alkali metal such as potassium, sodium and lithium or other suitable salt-forming metal, capable of making the compounds water soluble. If X is a radical it is preferred that such be ammonium, alkylamine or alkanolamine, either mono-, di-, or trialkylamine or mono-, di- or trialkanolamine, in which the alkyl and alkanol groups of the salt-forming amines are of 1 to 4 carbon atoms, preferably 2 to 3 carbon atoms.

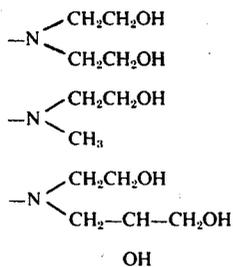
The novel esters of the present invention are prepared by reacting the dicarboxylic acid or preferably the anhydride thereof with a polyhydroxy tertiary amine having the structure:



wherein  $\text{R}_1$  is a monovalent hydrocarbon radical of 8 to 24 and preferably 10 to 20 carbon atoms,  $\text{R}_2$  is an alkyl or hydroxyalkyl radical containing 1 to 6 carbon atoms,  $\text{R}_3$  is a hydroxy alkyl radical containing 1 to 6 carbon atoms. Examples of

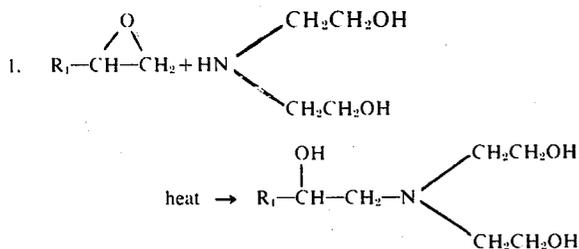


radicals of this class are:



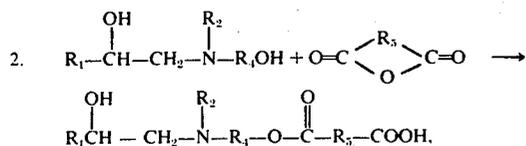
and related compounds in which the radicals contain more carbon atoms than in the formula shown above, e.g., radicals of di(isopropanol)amine, N-methyl-N-isopropanol-amine, N-ethyl-N-ethanolamine, N-ethyl-N-isopropanolamine, N-propyl-N-ethanolamine, N-propyl-N-isopropanolamine, N-methyl-N-hydroxyethoxyethylamine, N-butyl-N-hydroxyethoxyethylamine, N-cyclohexyl-N-hydroxyethoxyethylamine, N-butyl-N-ethanolamine, di(hydroxyethoxyethyl) amine, mono-(hydroxyethoxyethoxyethyl) amine, N-hydroxyethoxy-ethoxyethyl-N-methylamine, N-hydroxyethyl-N-hydroxy-isopropylamine, N-benzyl-N-hydroxyethylamine, or N-cycle-hexyl-N-2-hydroxy-2-phenylethylamine.

The polyhydroxy tertiary amines are known compounds which may be prepared by condensing secondary alcoholamines with long chain epoxides. A typical example of an amine/epoxide reaction is the preparation of 2-hydroxyalkyl-diethanolamine.



The dicarboxylic acid may be saturated, unsaturated, substituted or unsubstituted aliphatic or aromatic and include phthalic, succinic, maleic, glutaric, tartaric, malic, adipic, diphenic, naphthalic, etc.

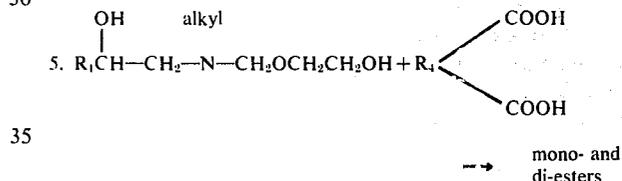
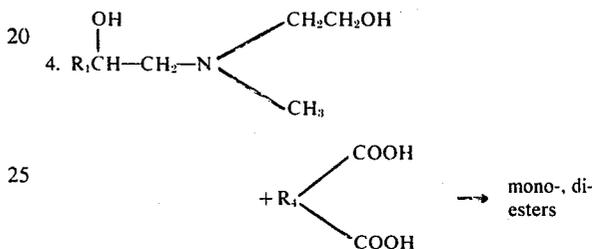
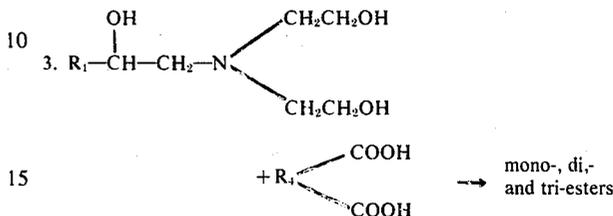
The reaction is predominantly in accordance with the following equation:



wherein the R radicals are as aforesaid, and equimolar amounts of reactants are used. The alcoholamine has at least two hydroxyl groups, one in the long chain resulting from the epoxide ring opening and one or more from the original alcoholamine. When utilizing equimolar amounts of reactants, the primary hydroxyl is preferentially esterified into the mono-ester, since it

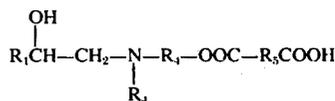
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is the least sterically hindered and therefore the most reactive group. However, when more than one mole of the acid anhydride is used, the other hydroxyl radicals react to form the di-ester, tri-ester, etc. and mixtures thereof. Similarly, the number of hydroxyl groups in the alcoholamine is determinative of the formation of the mono-, di-, or triesters.

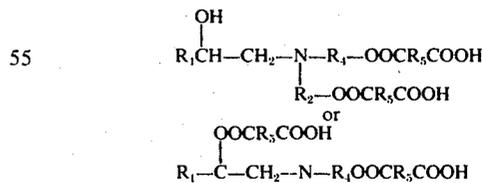


The esters formed in accordance with instant invention have one free carboxyl group for every esterified carboxyl radical as shown by the following structural formulae:

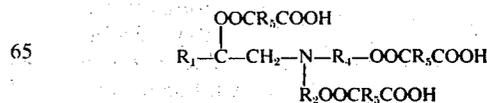
mono-ester;



di-ester:



tri-ester:



The esterification of the 2-hydroxyalkylalcoholamines with the dicarboxylic acid anhydride is an exothermic reaction which can be carried out in aprotic solvent, ether, chloroform or acetone, but it can also be carried out neat. The latter method is preferable as an industrial process, since no solvent is involved. The powdered acid anhydride (e.g. maleic anhydride) is added gradually to the liquid alcoholamine which is held at a temperature of about 100°C. The product is obtained as a high viscosity melt, that rapidly solidifies upon cooling. The ester (e.g. maleate) may be converted to the alkali metal salt (e.g. sodium) by neutralizing with a dilute aqueous solution of alkali metal hydroxide such as a 10% NaOH. When utilizing a solvent, the reactants are first dissolved therein and the solution refluxed until the esterification is complete. Evaporation of the solvent yields a resin-like waxy product, insoluble in water, but readily soluble in a dilute aqueous sodium hydroxide solution. When utilizing the dicarboxylic acid in lieu of the anhydride, the reaction is controlled so that only one mole of water is removed per mole of alcohol. Termination of the reaction at this point ensures the formation of the esters of instant invention and prevents the production of a polymeric linear ester. The reaction may be controlled by conventional methods of cooling or by other suitable means.

The products obtained are usually yellow or light yellow viscous mono-, di-, tri-esters and mixtures thereof, resin-like in appearance, insoluble in water, but readily soluble in alcohol, acetone, chloroform and in dilute aqueous sodium hydroxide wherein the sodium salt of the ester is formed. The mono-, di- and tri-esters can be readily separated and purified by chromatographic techniques in the usual manner. The sodium salts of instant novel esters are homogeneous and very water-soluble. Consequently, instant esters and salts thereof have been found to be particularly useful as detergents, due to their combined property of detergency and fabric conditioning (softening, anti-static, etc.).

Examples of esters in accordance with the present invention include:

N(2-hydroxydodecyl)-methylethanolamine maleate  
N-(2-hydroxyoctadecyl)-methylethanolamine maleate

N-(2-hydroxydodecyl)-diisopropanolamine maleate  
N-(2-hydroxyoctadecyl)-diisopropanolamine maleate

N-(2-hydroxydodecyl)-diethanolamine maleate

N-(2-hydroxyoctadecyl)-diethanolamine maleate

N-(2-hydroxydodecyl)-diglycolamine maleate

N-(2-hydroxyoctadecyl)-diglycolamine maleate

N-(2-hydroxypentadecyl)-diethanolamine phthalate

N-(2-hydroxyoctadecyl)-diethanolamine phthalate

Further examples of esters of dicarboxylic acid and 2-hydroxyalkyl tertiary alcoholamine and processes for producing the same can be found in copending application Ser. No. IR2338 Ser. No. 205,408, filed in the name of Bjorn Sundby on Dec. 6, 1971.

The novel esters of the present invention, in addition to possessing excellent detergency and water softening properties, have been found to be compatible with the various detergent builders and other additives conventionally employed in detergent compositions. Accordingly, it is possible to formulate a detergent composition based on the tertiary alcohol amine-dicarboxylic acid ester as the detergent and water softener. Because of the unusual compatibility of the esters of the present invention with the various detergent builders it is possi-

ble to prepare both solid phase detergent compositions and liquid detergent compositions.

In addition to the aforedefined esters or salts thereof, the novel detergent compositions of the present invention may contain one or more water soluble detergency builder salts either of the organic or the inorganic type.

Examples of water soluble inorganic detergency builder salts are alkali metal carbonates, bicarbonates, phosphates, polyphosphates, sulfates, borates and silicates etc. Specific examples of such salts are sodium, potassium and lithium tripolyphosphates, carbonates, pyrophosphates, orthophosphates and hexamethaphosphates; sodium, potassium and lithium sulfates; sodium, potassium and lithium silicates; sodium carbonate, bicarbonate, sequicarbonate; sodium tetraborate and mixtures thereof. Examples of organic alkaline detergency builder salts are (1) alkali metal amino polycarboxylates (e.g. sodium and potassium ethylenediaminetetraacetates,

N-(2-hydroxyethyl)-ethylenediaminetriacetates, nitrilo triacetates, and N-(2-hydroxyethyl)-nitrilo diacetates); (2) alkali metal salts of phytic acid (e.g., sodium and potassium phytates - See U.S. Pat. No. 2,739,942; (3) water soluble salts of ethane-1-hydroxy-1, 1-diphosphonate (e.g. the trisodium and tripotassium salts - See U.S. Pat. No. 3,159,581); (4) water soluble salts of methylene diphosphonic acid (e.g. trisodium and tripotassium methylene diphosphonate and the other salts described in U.S. Pat. No. 3,213,030; (5) water soluble salts of substituted methylene diphosphonic acids (e.g., trisodium and tripotassium ethylidene, isopropylidene, benzylmethylidene, and halomethylidene diphosphonates; (6) water soluble salts of polycarboxylate polymers and copolymers (e.g., polymers of itaconic acid, aconitic acid; maleic acid; mesaconic acid; fumaric acid; methylene malonic acid; and citraconic acid and copolymers with themselves and other compatible monomers such as ethylene); and mixtures thereof. Similarly, mixtures of organic and inorganic builder salts is also contemplated by instant invention.

In the detergent composition of the present invention the active ester or salt thereof is generally employed in an amount of from about 5 to 30 percent by weight of the total composition. While the water soluble detergency builder salts comprise from about 70 to about 95 percent by weight of the total composition. Preferably, the dicarboxylic acid-polyhydroxy tertiary amine ester comprises about 10 - 25 percent by weight while the detergent builders comprise from about 75 - 90 percent of the total composition.

The detergent compositions of this invention can contain any of the usual adjuvants, diluents and additives, for example, anionic, nonionic, ampholytic, cationic or zwitterionic detergents, perfumes, anti-tarnishing agents, anti-redeposition agents, bacteriostatic agents; dyes, fluorescers, suds builders, suds depressors, enzymes and the like, without detracting from the advantageous properties of the composition. Examples of anionic detergents are sodium xylene sulfonate, sodium toluene sulfonate, sodium coconut soap, sodium dodecyl benzene sulfonate and potassium tallow alkyl sulfate. Examples of nonionic detergents are dodecyldimethylamine oxide and the condensation product of coconut fatty alcohol with 5.5 moles of ethylene oxide. An example of a zwitterionic detergent is 3-(N-N-dimethyl-N-hexadecylammonio)-2-hydroxypropane-1-sulfonate. An example of an am-

pholytic detergent is sodium 3-dodecylamino-propionate. An example of a cationic detergent is cetyltrimethylammonium bromide.

While the detergent compositions of the present invention are excellent compositions for all types of cleaning operations, the compositions of the present invention are extremely effective for the cleaning of textiles as in a conventional laundry or washing machine. Thus, the detergent compositions of the present invention can be effectively used for laundering fabrics in water having a temperature of from about 60°F to about 212°F, the detergent composition of the present invention exhibiting unusually effective detergency and fabric softening characteristics in both cold and hot water. Preferably, the step of washing the fabrics with the detergent composition of the present invention is followed by rinsing and drying of the fabric. The detergent composition concentration in the wash solution should range from about 0.05 percent to about 0.5 percent by total weight, and the detergent composition should be added so as to provide an effective detergent and water softening amount of the 2-hydroxyalkylalcoholaminedicarboxylic acid ester component of at least 0.005 percent.

In washing fabrics, the addition of the fabrics and the detergent composition can be conducted in any suitable conventional manner. Thus, for example the fabrics can be added to the container or washer either before or after the washing solution is added. The fabrics are then agitated in the detergent solution for varied periods of time, a wash cycle of from 8 to 15 minutes being generally used in the washing cycle of an automatic agitator type washer. As stated above, following the washing of the fabrics the detergent composition is drained off of the fabrics and the fabrics are rinsed in substantially pure water. Here again, as a matter of choice, the fabrics can be rinsed as many times as desired. After rinsing of the fabrics, the fabrics are dried first by spinning and then by contact with the air as in conventional hanging of the fabrics on a clothesline or in an automatic dryer type system.

In the preparation of the novel detergent compositions of the present invention, generally, the organic detergent and water softening component as well as the builders and any minor ingredients are incorporated into the composition prior to its conversion into the final product from e.g. detergent granules, flakes, bar, etc. However, the individual components of the novel detergent composition of the present invention can be added in the form of particles or directly as a liquid to produce a liquid detergent composition.

Various embodiments of the present invention will now be illustrated by reference to the following specific examples. It is to be understood however that such examples are presented for purposes of illustration only and the present invention is in no way to be deemed as limited thereby.

#### EXAMPLE I

The instant novel esters and salts thereof were tested for their detergency properties as well as their efficacy as fabric softeners. The Spangler soil detergency tests were run using an aqueous solution containing 1.5 g. of detergent/liter water (0.15 percent product concentration), said detergent comprising 15 percent of the compound to be tested, 35 percent sodium tripolyphosphate and 50 percent sodium sulfate (based on dry in-

gredients), in soft and hard water at both 70°F and 120°F. Three Spangler soil swatches were washed 10 minutes in a Tergotometer with the rotor at 100 rpm, rinsed and dried. The ingredients were dry-blended by conventional methods and added to the aqueous system in the Tergotometer.

Similarly the test for softening effect on cotton materials is run using a terry cloth towel in three gallons of 100 p.p.m. hardness water. After washing in a miniature washing machine, the towel is rinsed in the normal manner and dried. The softness is rated on a scale of 1 to 10, with 1 indicating no softness and 10 representing maximum softness.

Table I

Compound	Δ Rd. (Soil Removal)				Softness
	70°F.		120°F.		
	NB-300 TAP PPM	NB-300 TAP PPM	NB-300 TAP PPM	NB-300 TAP PPM	
1. Ester of N-(2-hydroxy C <sub>15-18</sub> alkyl)-diethanolamine and maleic anhydride, Na-salt	14.2	12.0	15.6	9.8	10
2. Ester of N-(2-hydroxy C <sub>15-18</sub> alkyl)-diethanolamine and phthalic anhydride, Na-salt	17.6	11.5	16.8	12.5	9
3. Control-Linear tridecyl-benzene sulfonate (LTBS)	17.0	11.0	19.2	13.1	1
4. Ester of N-(2-hydroxy-hexadecyl) diethanolamine and maleic anhydride	18.0	11.7	20.4	12.8	
5. Control-LTBS	16.2	9.9	21.0	12.2	

The results shown above indicate an unexpectedly excellent detergency in hard and soft water, both cold and hot, as compared to commercial detergent linear tridecyl benzene sulfonate. In addition to possessing excellent detergency properties, instant esters exhibit excellent fabric softening characteristics, not possessed by the control. Similar results are obtained with other 2-hydroxy alkyl tertiary alcohol aminedicarboxylic esters and salts thereof.

#### EXAMPLE II

Other typical detergent-softening compositions include:

80% sodium tripolyphosphate, and

- 20% (a) N-(2-OH dodecyl) methylethanolamine maleate
- b. N-(2-OH)octadecyl) methylethanolamine maleate
- c. N-(2-OH) dodecyl) diisopropanolamine maleate
- d. N-(2-OH)octadecyl) diisopropanolamine maleate
- e. N-(2-OH) dodecyl) diethanolamine maleate
- f. N-(2-OH) octadecyl) diethanolamine maleate
- g. N-(2-OH) dodecyl) diglycolamine maleate
- h. N-(2-OH) octadecyl) diglycolamine maleate

#### EXAMPLE III

%	Ingredients
80	Sodium tripolyphosphate
20	Sodium salt of the ester of 2-hydroxy hexadecyl diethanolamine and maleic anhydride.

This composition tested in accordance with the procedure in Example I gave a softness value of 8. When the ester content is increased to 23 percent, the softness value is increased to 10.

#### EXAMPLE IV

The following composition tested in accordance with the method of Example I yielded a softness value of 10.

Weight in grams	Ingredients
40 g.	Sodium tripolyphosphate
5 g.	Sodium salt of the maleate of 2-hydroxy hexadecyl diethanolamine.
10 g.	Linear tridecyl benzene sulfonate

#### EXAMPLE V

Weight in grams	Ingredient
40 g.	Sodium tripolyphosphate
5 g.	Sodium phthalate of 2-hydroxy hexadecyl diethanolamine
10 g.	Linear tridecyl benzene sulfonate

This composition tested in accordance with the method in Example I gave a softness rating of 8.

#### EXAMPLE VI

%	Ingredients
23	Sodium phthalate of 2-hydroxy-hexadecyl diethanolamine
77	Sodium tripolyphosphate

Fabric washed with this composition in accordance with the procedure in Example I exhibited a softness rating of 10.

#### EXAMPLE VII

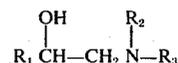
%	Ingredient
13.2	Ester of 2-Hydroxy hexadecyl diethanolamine and maleic anhydride
86.8	Water

At room temperature, this composition is a clear, 1-phase, moderately viscous liquid which may be used in the wash cycle with known commercial laundry detergents as both a softener and detergency booster. Softness rating is 10.

The present invention has been described, in conjunction with various illustrations and embodiments thereof set forth in the specification. However, it is evident that equivalents may be substituted for the present compounds and procedural steps, without departing from the principles of this invention or the spirit thereof. Those of skill in the art will recognize what equivalents and substitutes are also within the scope of the present disclosure.

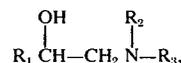
What is claimed.

1. A detergent composition having inherent softening properties containing as essential ingredients about 5-30 percent weight of a dual detergent and softening compound selected from the group consisting of esters of dicarboxylic acids of the group consisting of phthalic, succinic, maleic, glutaric, tartaric, malic, adipic, diphenic and naphthalic acids and polyhydroxy tertiary mono functional amines, said amine having the structural formula:



wherein  $\text{R}_1$  is an alkyl radical of 8 to 24 carbon atoms,  $\text{R}_2$  is an alkyl or alkylol radical containing 1 to 6 carbon atoms, and  $\text{R}_3$  is an alkylol radical containing 1 to 6 carbon atoms and the alkali metal, ammonium, mono-, di- and trialkyl, or mono-, di- and trialkanol amines salts of said ester in which the alkyl and alkanol groups of the amine contain from 1 to 4 carbon atoms salts thereof and about 70-95 percent by weight of water-soluble builder salt.

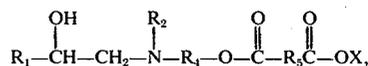
2. A detergent composition having inherent softening properties containing as essential ingredients about 5-30% by weight of a dual detergent and softening compound selected from the group consisting of esters of dicarboxylic acid selected from the group consisting of maleic acid, phthalic acid and anhydrides thereof and polyhydroxy tertiary monofunctional amines, said amine having the structural formula:



wherein  $\text{R}_1$  is an alkyl radical of 8 to 24 carbon atoms,  $\text{R}_2$  is an alkyl or alkylol radical containing 1 to 6 carbon atoms, and  $\text{R}_3$  is an alkylol radical containing 1 to 6 carbon atoms and the alkali metal, ammonium, mono-, di- and trialkyl, or mono-, di- and trialkanol amines salts of said ester in which the alkyl and alkanol groups of the amine contain from 1 to 4 carbon atoms, salts thereof and about 70-95 percent by weight of water-soluble builder salt.

3. A detergent composition in accordance with claim 1, wherein said ester consists of mono-, di-, and triesters and/or mixtures thereof.

4. A detergent composition in accordance with claim 1 wherein the ester has the formula:



wherein  $\text{R}_1$  and  $\text{R}_2$  are as defined above,  $\text{R}_4$  is an alkylene radical of 1 to 6 carbon atoms,  $\text{R}_5$  is ethylene and X is hydrogen or salt-forming element or radical.

5. A composition in accordance with claim 1, wherein the ester is N-(2-hydroxy hexadecyl)-diethanol-amine maleate.

6. A composition in accordance with claim 1, wherein the salt of the ester is sodium phthalate of N-(2-hydroxyhexadecyl)-diethanolamine.

7. A composition in accordance with claim 1, wherein the ester is N-(2-hydroxyhexadecyl) diethanolamine phthalate.

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8. A method of simultaneously cleaning and softening textiles which comprises laundering said textiles in an aqueous bath containing the composition of claim 1.

9. A method in accordance with claim 8, wherein the detergent composition constitutes about 0.05-0.5% by weight of the aqueous bath.

10. A method in accordance with claim 9, wherein the ester constitutes about .005% by weight of the aqueous bath.

11. A detergent composition in accordance with claim 1 wherein said builder is sodium tripolyphosphate.

12. A composition in accordance with claim 4 wherein X is selected from the group consisting of alkali metal, ammonium, mono-, di- and trialkylamine and mono-, di- and trialkanolamine wherein the alkyl and alkanol groups of said amine contain from 1 to 4 carbon atoms.

13. A detergent composition in accordance with

claim 1 further containing detergent selected from the group consisting of anionic, nonionic, ampholytic, cationic and zwitterionic detergent.

14. A detergent composition in accordance with claim 13 wherein said detergent is linear tridecyl benzene sulfonate.

15. A detergent composition in accordance with claim 1 wherein said ester is selected from the group consisting of:

- N-(2-OH) dodecyl) methylethanolamine maleate;
- N-(2-OH) octadecyl) methylethanolamine maleate;
- N-(2-OH) dodecyl) diisopropanolamine maleate;
- N-(2OH) octadecyl) diisopropanolamine maleate;
- N-(2OH) dodecyl) diethanolamine maleate;
- N-(2-OH) octadecyl) diethanolamine maleate;
- N-(2-OH) dodecyl) diglycolamine maleate;
- N-(2-OH) octadecyl) diglycolamine maleate.

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