

UNITED STATES PATENT OFFICE

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COSMETIC

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19 Claims. (Cl. 167-90)

This invention relates to cosmetic preparations and is particularly concerned with improvements in such preparations as cosmetic creams, including cold creams, vanishing creams, tissue creams, anti-perspiration creams, lip-sticks, so-called lip rouges, pomades, shaving creams of the brushless and lathering type; hair washes and hair shampoos; dentifrices such as tooth pastes, tooth powders, liquid dentifrices, mouth washes, and the like.

Conventional preparations of the type of cold creams, vanishing creams, shaving creams, and the like, contain a fatty constituent, generally in the form of oils, fats, higher fatty acids such as stearic acid, waxes, and similar materials of a generally oleaginous material. Vanishing creams, shaving creams, and similar preparations also contain relatively large proportions of water whereas lip sticks, lip rouges and the like are devoid of an aqueous constituent. Soap or other alkaline material which may or may not be converted into a soap in the finished product is likewise a very common constituent of creams of the type described.

The usual tooth pastes and tooth powders frequently contain soap or other saponaceous materials such as saponines, Turkey-red oil, and the like, and materials such as precipitated chalk, dicalcium phosphate, tricalcium phosphate, kieselguhr, borax, perborates, peroxides, boric acid, magnesium carbonate, and other known ingredients.

It is well recognized that soaps and the like possess various objectionable properties such as disagreeable taste, instability, relatively poor foaming or lathering properties in the limited proportions which can be used, and, in the case of tooth pastes, a tendency to cause a hardening thereof.

Hair washes or shampoos are also of various types but a common example of an ordinary shampoo comprises an aqueous solution of a liquid soap, such as a soap of coconut oil fatty acids. Such preparations are unsatisfactory, among other things, in that their lathering properties are severely diminished when they are used in the presence of hard water and, in addition, scums of insoluble salts of fatty acids comprising the original soap form in the hair and are exceedingly difficult to remove. Another class of hair shampoos comprises an aqueous solution of Turkey-red oil or similar sulphonated oils. These products have several objections among which is their failure to foam or lather and, in addition, they are sensitive to hardness in water. Recent-

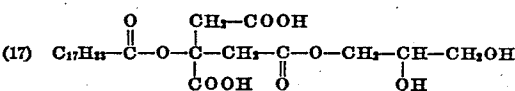
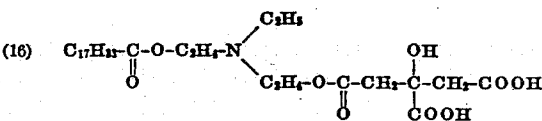
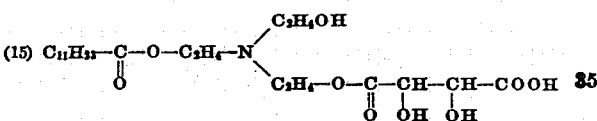
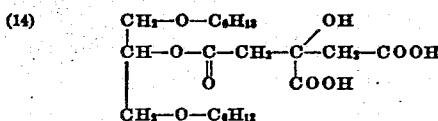
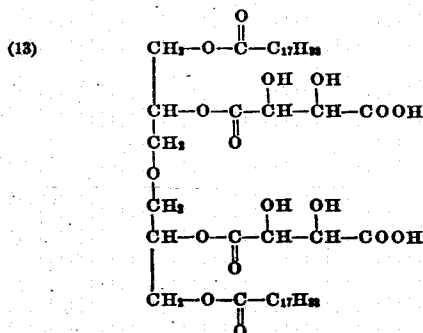
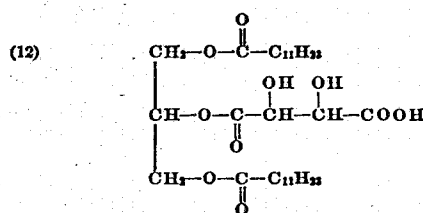
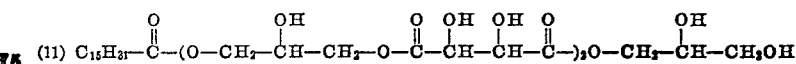
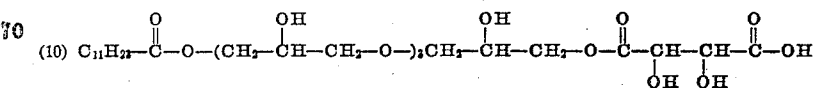
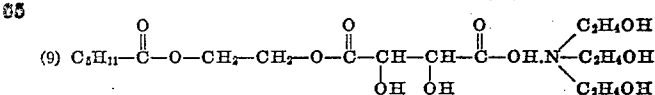
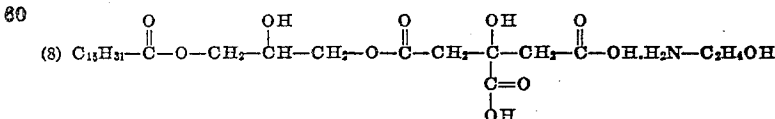
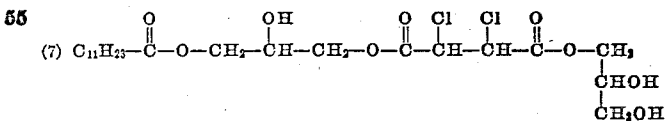
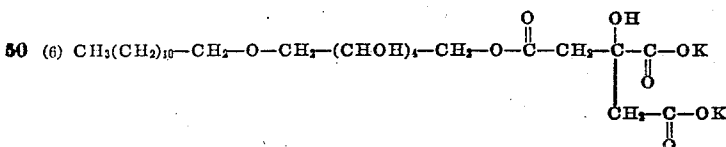
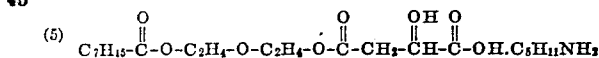
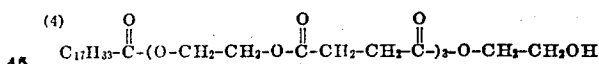
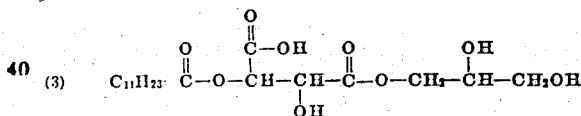
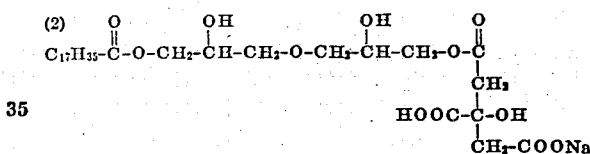
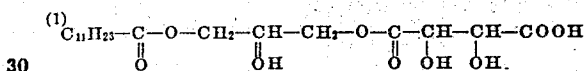
ly, so-called "soapless" shampoos have been offered on the market in the form of aqueous solutions of certain so-called wetting agents. While overcoming many of the objections to the shampoos previously known and employed, they still leave something to be desired. In particular, most of the so-called soapless shampoos have the objection of causing a drying out of the hair or scalp.

In accordance with the present invention, cosmetic preparations of the type described hereinabove can be considerably improved by incorporating therein certain chemical compounds, which will be described in detail hereinafter, such chemical compounds being employed either in place of the soap or the like or in conjunction with or additions to preparations of the types heretofore known. These improvements manifest themselves in various ways. The chemical compounds which are utilized are innocuous and non-toxic and many are relatively tasteless. Certain of them are stable in the presence of acids and alkaline materials and may, therefore, be employed in cosmetic preparations irrespective of the pH thereof. Many of the said compounds are excellent foaming agents and are effective in comparatively small amounts to produce an excellent cleansing foam. As distinguished from soaps, the chemical compounds which are employed in accordance with the present invention may, if desired, be made substantially neutral. In the case of cosmetic preparations, their use overcomes a recognized prejudice against the employment of soaps. In cosmetic creams, their employment results in the production of smooth creams having an improved texture. In general, the creams tend to be somewhat thinner and thereby spread over the surface of the skin more easily and exert a marked softening action thereon. In the case of dentifrices, they may be utilized in such a way as not to disturb the normal acidity of the mouth. In addition, the chemical compounds appear to exert a bacteriostatic effect on the mouth tissues, although this matter has not yet been ascertained with certainty. Independently of any theoretical consideration, the fact is, however, that the use of the chemical compounds contemplated herein in dentifrices produces substantial improvements therein. In the case of shampoos and hair washes, the employment of the chemical compounds in accordance with the present invention also brings about definite improvements, particularly where the compounds selected are stable in the presence of

hard water and possess marked foaming and cleansing properties.

The chemical compounds which are employed in accordance with the present invention are, in general, esters of certain aliphatic polyhydric alcohols with higher molecular weight aliphatic acids and preferably water-soluble aliphatic polycarboxylic acids, especially hydroxy polycarboxylic acids. These compounds possess pronounced lyophilic properties with respect to both aqueous and non-aqueous media, but particularly in relation to aqueous media. Indeed, this is true to such an extent that in many, if not in most, cases, the very definitely preferred embodiments represent compounds which either disperse in water with the greatest of ease or, in many instances, readily dissolve in water to give clear, transparent solutions.

While many of the products which are utilized in the present invention may best be defined in the form of reaction products, they and particularly some of the more potent constituents thereof may, at least in part, be characterized or described by way of structural formulae. Illustrative examples of such compounds the use of which falls within the scope of the present invention are as follows:



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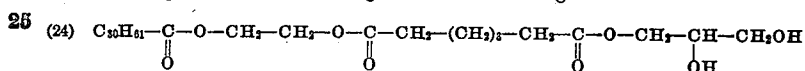
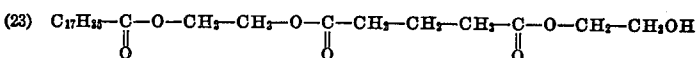
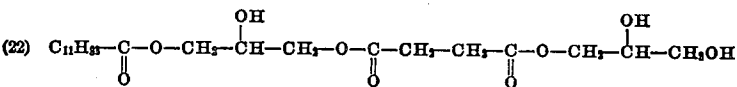
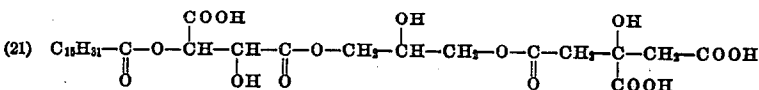
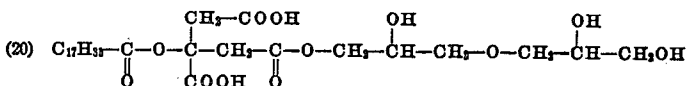
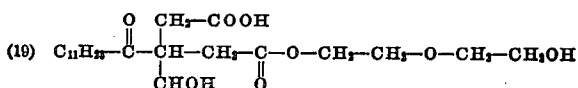
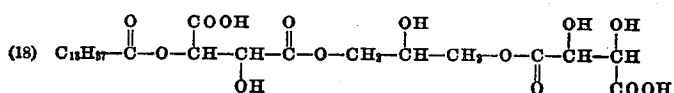
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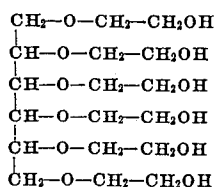
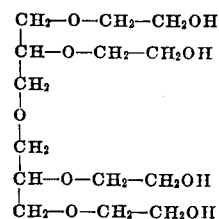
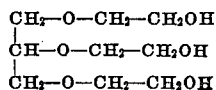
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The higher molecular weight aliphatic carboxylic acids which may be employed as such, or in the form of their derivatives such as the acyl halides thereof, in the preparation of the chemical compounds utilized herein include, among others, straight chain and branched chain, saturated and unsaturated, carboxylic, aliphatic, and fatty acids such as caprylic acid, heptylic acid, caproic acid, capric acid, pimelic acid, sebacic acid, behenic acid, arachic acid, cerotic acid, erucic acid, melissic acid, stearic acid, oleic acid, ricinoleic acid, ricinelaic acid, ricinostearic acid, linoleic acid, linolenic acid, lauric acid, myristic acid, palmitic acid, mixtures of any two or more of the above mentioned acids or other acids, mixed higher fatty acids derived from animal or vegetable sources, for example, lard, coconut oil, rapeseed oil, sesame oil, palm kernel oil, palm oil, olive oil, corn oil, cottonseed oil, sardine oil, tallow, soya bean oil, peanut oil, castor oil, seal oils, whale oil, shark oil and other fish oils, partially or completely hydrogenated animal and vegetable oils such as those mentioned; hydroxy and alpha-hydroxy higher carboxylic, aliphatic and fatty acids such as i-hydroxy stearic acid, dihydroxypalmitic acid, dihydroxystearic acid, dihydroxybehenic acid, alpha-hydroxy capric acid, alpha-hydroxy stearic acid, alpha-hydroxy palmitic acid, alpha-hydroxy lauric acid, alpha-hydroxy myristic acid, alpha-hydroxy coconut oil mixed fatty acids, alpha-hydroxy margaric acid, alpha-hydroxy arachidic acid, and the like; fatty and similar acids derived from various waxes such as beeswax, spermacetic, montan wax, coccerin, and carnauba wax and higher molecular weight carboxylic acids derived, by oxidation and other methods, from paraffin wax, petroleum and similar hydrocarbons; and substitution and addition derivatives of the aforementioned acids, in particular, halogen addition and substitution derivatives. It will be understood that mixtures of any two or more of said acids may be employed if desired and it will also be appreciated that said acids may contain substituent groups such as sulphate, sulphonic, nitrile, thiocyanogen, carbonyl, amide, amine or substituted amine, halogen, ketone, acetoxy, and other groups.

The aliphatic polyhydroxy substance which

forms a part of the molecule of the chemical compounds which are utilized for the purposes of the present invention may also be selected from a large group including glycerol; glycols of both low and high molecular weight such as ethylene glycol, propylene glycol, trimethylene glycol, butylene glycol, cetene glycols and other vicinal glycols; 1,10 dihydroxyoctadecene; 1,10 dihydroxyoctadecane, and the like; polyglycols such as diethylene glycol; pentaerythritol; quercitol; dihydroxy acetone; triethanolamine; tripropanolamine; polyglycerols such as diglycerol, tetraglycerol and the like including mixtures thereof; carbohydrates or sugars including mono-, di- and polysaccharides such as dextrose, sucrose, xylose, arabinose, galactose, fructose, maltose, mannose, dextrin, starch, and the like; the natural and synthetic, simple and complex glucosides; sugar alcohols such as arabitol, mannitol, sorbitol and dulcitol; and polyhydroxy-carboxylic acids such as tartaric acid, mucic acid, saccharic acid, gluconic acid, glucuronic acid, gulonic acid, mannonic acid, trihydroxyglutaric acid, glyceric acid, carboxylic oxidation products of polyglycerols, others of similar character, and hydroxyethyl and hydroxypropyl ether derivatives of the above, as, for example:



(For convenience, all hydroxyl groups are written facing one way.)

The polyhydroxy substance may, in certain cases, contain substituent groups of the character set forth in connection with the discussion of the higher fatty acids and the like hereinabove.

5 The aliphatic polycarboxylic acids and hydroxy polycarboxylic acids may likewise be varied and include, among others, maleic acid, fumaric acid, maleic acid, citric acid, citraconic acid, itaconic acid, aconitic acid, dichloromaleic acid, glutaric acid, tartaric acid, adipic acid, trihydroxyglutaric acid, succinic acid, hydroxymethyl succinic acid, mucic acid, saccharic acid, pimelic acid, suberic acid, azelaic acid, sebacic acid, the mono- and poly-hydroxy derivatives of pimelic, suberic, azelaic and sebacic acids, and the like. These acids may be utilized as such or in the form of their anhydrides or esters as, for example, the ethyl ester of citric acid. The acids may also contain other substituents such as CN, NH₂, NO₂, F, Cl, Br, I, SO₃H, SCN, phosphate, sulphate, etc. Tartaric and citric acids are definitely preferred embodiments of hydroxy polycarboxylic acids which are utilized in the production of the compounds which are employed herein.

25 The chemical compounds, in certain instances, may be used as such in the cosmetic preparations or they may be neutralized, in whole or in part, with suitable anti-acid materials. In this connection, considerable latitude and modification may be exercised. In general, inorganic as well as organic anti-acid agents may be employed. Examples of such agents which may be used satisfactorily are bicarbonates of the alkali metals, potassium hydroxide, potassium carbonate,

30 metallic sodium, sodium hydroxide, sodium oxide, sodium carbonate, ammonium hydroxide, ammonia gas, and the like; organic nitrogenous bases such as primary, secondary and tertiary amines including alcohol-, alkylol-, and aralkylol-amines, including monoethanolamine, diethanolamine, triethanolamine, propanolamines, butanolamines, pentanolamines, hexanolamines, glycerolamines, sugar alkylolamines and sugar alcohol alkylolamines such as those of dextrose,

40 sucrose, sorbitol, mannitol and the like; dimethyl monoethanolamine, diethyl monoethanolamine, dibutyl mono-ethanolamine, diethanol methyl amine, diethanol ethyl amine, diethanol butanol amine, cyclohexyl ethanolamine, diethanol cyclohexylamine, ethanol aniline, alkylol polyamines such as alkylol derivatives of ethylene diamine, mono-methyl mono-ethanolamine, diethyl monoethanolamine, 1-amino-2,3-propanediol, 1,2-diamino-propanol; alkylamines

50 such as ethylamine, propylamine, laurylamine, cetylamine, butylamine, hexylamine, cyclohexylamine, aniline, toluidines, dimethylamine, diethylamine, N-methyl-N-ethyl amine, triethylamine, trimethylamine, ethylene diamine, diethylene triamine, triethylene tetra-amine, betaine, mono-methyl ethylene diamine, mono-ethyl diethylene tetra-amine, mono-allyl amine, hydrazine and substituted hydrazine, aromatic and heterocyclic bases and cyclic nitrogenous substances such as benzylamine, cyclohexylethyl aniline, morpholine, pyridine, dimethylaniline, N-methyl-N-benzyl amine, N-ethyl-N-naphthyl amine, quinoline, quinaldine, piperidine, alkyl

60 pyridines, such as methylpyridine, pyrrolidines, nicotine, and homologues and derivatives or substitution products thereof, and, in general, primary, secondary and tertiary amines substituted or not with other radicals, such as hydroxy, alkyl, aryl, cyclo-alkyl groups and the like; quater-

nary ammonium bases or hydroxides such as tetra-methyl ammonium hydroxide, tetra-ethyl ammonium hydroxide, quaternary ammonium bases with dissimilar alkyl radicals such as methyl-triethyl ammonium hydroxide, propyl trimethyl ammonium hydroxide; mixtures of any two or more of said bases, as, for example, in the case of commercial triethanolamine which contains minor proportions of mono- and diethanolamine; proteins and partial digestion or hydrolysis products thereof. It will be understood that these substituted ammonium compounds or organic nitrogenous bases may be utilized in pure, impure, or commercial form.

15 It will be understood that by the term "cation", as used throughout the specification and claims, is meant hydrogen and such other elements as are mentioned herein, and, in general, atoms or radicals which are regarded as bearing a positive charge or capable of replacing acidic hydrogen. The chemical compounds may be neutralized to methyl orange, litmus or phenolphthalein or to any desired hydrogen ion concentration. As a general rule, if the salts of the chemical compounds are employed, it is preferred to use the sodium, potassium, ammonium, alkylolamine, or other soluble salts.

25 A particularly important group of the chemical compounds which are utilized herein are those wherein the pattern or linkage between the aliphatic polyhydroxy substance and the aliphatic polycarboxylic acid or hydroxy polycarboxylic acid repeats itself in the molecular structure. This pattern is not, however, repeated to such an extent as to impair or destroy the water-solubility or ready water-dispersibility of the chemical compounds. This pattern repetition is illustrated by Examples 4 and 11 in the compounds listed hereinabove.

40 The following examples are illustrative of the preparation of the chemical compounds which may be employed in accordance with the present invention. It will be appreciated that the proportions of reacting ingredients, times of reaction, temperatures of reaction, and the like may be varied and that supplementary processes of purification and the like may be resorted to wherever found desirable or convenient. These and other variations and modifications will be evident to those skilled in the art in the light of the guiding principles which are disclosed herein.

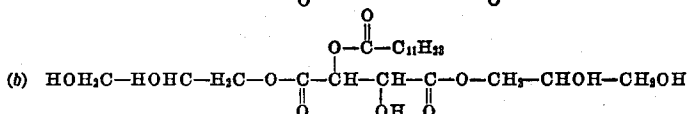
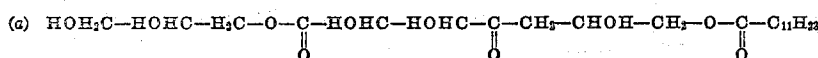
Example A

55 (1) 34.8 parts by weight of glycerin and 28.4 parts by weight of tartaric acid were heated, provision being made for water of reaction to escape, with stirring, for about 5 hours at a temperature between 120 degrees C. and 140 degrees C. at the end of which time a small amount of free tartaric acid remained, the balance having reacted with the glycerin to form esters therewith.

65 (2) 7.9 parts by weight of the reaction product of part (1) were dissolved in 30 parts by weight of hot, dry pyridine, the solution was cooled, and 5 parts by weight of lauroyl chloride were added. The mass was periodically agitated and allowed to stand over night and was then extracted with petroleum ether. The petroleum ether adhering to the residue was then evaporated in vacuo at 100 degree C. The final reaction product contained a substantial proportion of

compounds having one or both of the probable formulae

In order that those skilled in the art may even more fully understand the nature of the inven-

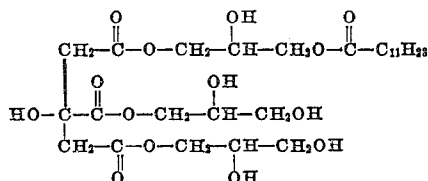


It foamed well in dilute acid and dilute alkali media and was stable in the presence of calcium ions.

Example B

(1) 276 parts by weight of glycerin and 192 parts by weight of citric acid were heated, water of reaction being permitted to escape, with stirring, for about 6 hours at a temperature ranging from 140 degrees C. to 155 degrees C., at the end of which time some free citric acid remained.

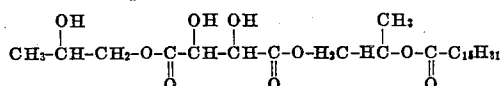
(2) 78.85 parts by weight of the reaction product of part (1) hereof were dissolved in 200 parts by weight of dry pyridine, the solution was cooled, and 57 parts by weight of stearoyl chloride were gradually added while cooling and stirring. The mass was allowed to stand for several hours and was then extracted with petroleum ether. The remaining brown syrup was then freed of adhering petroleum ether by heating at 100 degrees C. in vacuo. It had good foaming properties and comprised a brown, syrupy material, a major portion of which had the probable formula



Example C

(1) 192.25 parts by weight of propylene glycol and 189.8 parts by weight of tartaric acid were heated, with stirring, for 8 hours at a temperature ranging from 135 degrees C. to 170 degrees C., the resulting ester being a viscous, glassy syrup containing some unreacted tartaric acid.

(2) 23.2 parts by weight of the ester reaction product of part (1) hereof were dissolved in 75 parts by weight of dry pyridine, the solution was cooled, and 27.5 parts by weight of palmitic acid chloride were gradually added while cooling and stirring. The mass was permitted to stand for several hours and was then extracted with petroleum ether. The residue, freed from adhering petroleum ether, showed good foaming properties and had the probable formula



It is evident that various of the chemical compounds which are employed herein may be produced in different ways. Thus, for example, the mono-succinic acid ester of monolaurin may be prepared by reacting monolaurin with succinic acid anhydride. Alternatively, it may be prepared by reacting the mono-succinic acid ester of glycerin with lauroyl chloride. The particular method selected will depend upon various considerations such as cost and availability of reacting ingredients, simplicity of procedure, yields of the desired compounds, and the like.

tion, the following examples are set forth hereinbelow. It is, however, to be understood that said examples are merely illustrative and are in no wise to be construed as limitative of the invention. All parts listed are by weight except where otherwise indicated.

(I) Tooth paste

	Parts	
Precipitated chalk	110	20
Glycerine	75	
Product of Example A	3	
Gum tragacanth	2.7	
Water	100	
Flavor to suit.		25

(II) Tooth paste

	Parts	
Precipitated chalk—light	100	
Tricalcium phosphate	75	
Soap powder	10	30
Product of Example A	5	
Gum tragacanth	0.2	
Mixture of glycerin, honey and water in amount sufficient to give desired consistency.		
Flavor to suit.		35

(III) Vanishing cream

	Parts	
Stearic acid	400	
Potassium hydroxide	27	40
Water	1600	
Mono-tartaric acid ester of monolaurin	20	
Perfume to suit.		

(IV) Cold cream

Almond oil	cc.	1100	45
White wax	grams	295	
Borax	do.	20	
Mono-citric acid ester of diglycerol monostearate	do.	40	50
Water	cc.	570	
Perfume to suit.			

(V) Brushless shaving cream

	Parts	
Stearic acid	184	55
Mineral oil	20	
Lanolin	20	
Water	685	
Glycerin	52	60
Soap (potassium stearate)	5	
Monostearin	31	
Product of Example A	3	

(VI) Hair shampoo

A 15% solution, in water, of the monoethanolamine salt of the mono-tartaric acid ester of monolaurin.

The compositions described hereinabove are made in the usual way that such preparations are made. Thus, for example, the chemical compounds disclosed herein may be preliminarily incorporated in the oleaginous or waxy material of the cosmetic preparations or dispersed in the aqueous material prior to incorporation there-

with of any remaining ingredients. However, the chemical compounds disclosed should preferably not be contacted with strong alkalis, such as concentrated caustic soda solution.

It will be understood that the chemical compounds need not be utilized in the pure state. Indeed, in most instances it will be found to be more convenient and commercially desirable to employ them in the form of their reaction mixtures with or without the addition of diluents. It will also be understood that mixtures of any one or more of the reacting constituents may be employed in producing the products hereof and this is particularly the case where commercial supplies of the chemicals are utilized. It will also be appreciated that any of the polyhydroxy substances listed hereinabove may be reacted with any of the polycarboxylic acids and higher molecular weight acids to produce products which are useful for the purposes of the present invention.

It will also be understood that the proportions of the previously described chemical compounds employed in the cosmetics may be widely varied, depending upon various factors such as the nature of the particular cosmetic, the effectiveness of the particular chemical compound selected, the specific results sought, and the like. In general, in the creams and dentifrices, the proportions will vary from under 1% to as high as 10% or more, a preferred range usually being from 1% to 3.5%. In hair washes and shampoos, between about 5% and 20% and somewhat higher is effective, about 12% to 18% representing a satisfactory average.

It will be seen from a consideration of the numerous examples listed hereinabove that the chemical compounds which are employed herein fall into two categories, namely (1) wherein they are derived from monomeric polyhydroxy substances or polyhydric alcohols, exemplified by glycerol, ethylene glycol, and the like, and (2) those which are derived from polymeric alcohols, exemplified by diglycerol, triglycerol, tetraglycerol, and the like, it being understood that the term "polymeric" is used herein to denote alcohols containing more than two esterifiable hydroxy groups. Of particular utility herein are the monomeric derivatives.

Again, the compounds utilized herein may be classified with respect to the absence therein of free or unesterified carboxyl groups. Those represented by Numbers 4, 7, 11, 22, 23, and 24 fall into this category whereas the other compounds are characterized by the presence of free or unesterified carboxyl groups. In certain cases, those which fall into the group represented by Numbers 4, 7, 11, 22, 23 and 24 are especially useful.

The term "fatty constituent", as used in the claims, will be understood to include not only conventional fats and oils, whether of animal, vegetable or mineral origin, but also higher molecular weight carboxylic and fatty acids as well as waxes, and, in general, any material having a greasy character and which is immiscible with water.

The term "higher", as used herein and in the claims to describe carboxylic and fatty acids and the like, will be understood to mean at least six carbon atoms unless otherwise specifically stated.

While the invention has been described in detail, it is to be understood that the scope thereof is not to be limited other than as set forth in the claims.

Wherever the chemical compounds are referred to in the claims, it will be understood that it is intended to cover them irrespective of whether any free carboxyl groups therein are neutralized or not. In other words, the language employed will include compounds wherein the hydrogen of carboxylic groups is present as such or is replaced by another cation, unless the connotation otherwise expressly indicates otherwise.

The term "poly" wherever used herein, unless otherwise specifically stated, will be understood to be employed in its usual sense, namely, to denote two or more.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. A cosmetic preparation containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight aliphatic acid ester of an ester of an aliphatic polyhydroxyl substance with an aliphatic polycarboxylic acid.
2. A cosmetic preparation containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of a monomeric aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.
3. A cosmetic preparation containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of glycerin with an aliphatic polycarboxylic acid.
4. A cosmetic preparation containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of glycerin with a water-soluble aliphatic hydroxy polycarboxylic acid containing not more than six carbon atoms.
5. A cosmetic preparation containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight aliphatic carboxylic acid ester of an ester of glycerin with tartaric acid.
6. A cosmetic preparation in accordance with claim 5 wherein the higher molecular aliphatic carboxylic acid radical comprises a lauric acid radical.
7. A cosmetic cream containing a fatty constituent and a proportion of a chemical compound in the form of a lyophillic higher molecular weight aliphatic acid ester of an ester of a polymeric aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.
8. A cosmetic cream containing a fatty constituent and a proportion of a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of an aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.
9. A cosmetic cream comprising an emulsion of oleaginous and aqueous materials and containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight aliphatic acid ester of an ester of a monomeric aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.
10. A cosmetic preparation comprising an emulsion of oleaginous and aqueous materials, the oleaginous material comprising predominantly a normally solid higher molecular weight fatty acid, and containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of a polymeric aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.
11. A dentifrice containing in addition to the usual dentifrice ingredients a proportion of a

chemical compound in the form of a lyophillic higher molecular weight aliphatic acid ester of an ester of an aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.

5 12. A dentifrice comprising a salt of the class consisting of tricalcium phosphate, dicalcium phosphate, and calcium carbonate in admixture with a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of an aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.

10 13. A cosmetic preparation in the form of a hair shampoo comprising an aqueous solution of a chemical compound in the form of a lyophillic higher molecular weight aliphatic acid ester of an ester of an aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.

15 14. A cosmetic preparation in the form of a hair shampoo comprising an aqueous solution of at least 5% by weight of a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of a monomeric aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.

20 15. A cosmetic preparation in the form of a hair shampoo comprising an aqueous solution of at least 5% of a chemical compound in the form of a nitrogenous base salt of a lyophillic higher

molecular weight aliphatic acid ester of an aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.

16. A cosmetic preparation in the form of a hair shampoo comprising an aqueous solution of at least 5% of a chemical compound in the form of an alkylolamine salt of a lyophillic higher molecular weight fatty acid ester of an aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.

17. A cosmetic preparation containing a proportion of a chemical compound in the form of a lyophillic higher molecular weight aliphatic carboxylic acid ester of an ester of glycerin with citric acid.

18. A cosmetic preparation in accordance with claim 17 wherein the higher molecular weight aliphatic carboxylic acid radical comprises a lauric acid radical.

19. A cosmetic preparation in the form of a hair shampoo comprising an aqueous solution of at least 5% by weight of a chemical compound in the form of a lyophillic higher molecular weight fatty acid ester of an ester of a polymeric aliphatic polyhydric alcohol with an aliphatic polycarboxylic acid.

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