

1

2,996,432

SKIN TREATING COMPOSITION AND METHOD
John P. Modderno, Gambrills, Md., assignor to Modern-Lab., Incorporated, Baltimore, Md., a corporation of Maryland

No Drawing. Filed Apr. 7, 1961, Ser. No. 100,786
15 Claims. (Cl. 167-90)

This invention has as an object the provision of new and a paste-like liquid form to parts of the body, especially the external surface thereof, and capable of solidifying in situ to form a mask, covering, or the like, and to the method of dispensing and applying these compositions and to the products formed therefrom. More particularly, this invention relates to treating compositions employing a gel-type material, such as an alginate or rubbery material with protective colloid, as the base material for forming facial masks capable of cleansing, astringing, and applying beneficial oils, moisture, etc., to the skin, protective coverings, or the like.

This application is a continuation-in-part application of my co-pending U.S. applications Serial No. 611,386 and Serial No. 526,076, filed September 21, 1956, and August 2, 1955, respectively, Serial No. 611,386 being a continuation-in-part of Serial No. 526,076.

Many compositions have been heretofore known in the art for application to the human body, for example, facial treating compositions, and the like, for forming treating masks on the face. These compositions, however, have not been adaptable to convenient methods of application and have required the mixing by hand of several ingredients by the person applying the composition at the time of use. In addition, these compositions, when applied to the face or other parts of the body, have not been capable of setting in relatively short periods of time, which is a feature that is essential to the comfort of the person treated and to the effectiveness of the composition. Also, these materials when set have not been capable of effecting a beneficial treatment by remaining in a moist condition and sufficiently porous to allow breathing of the skin during treatment, all of which is essential to comfortable and effective skin treatment by the use of a mask.

This invention contemplates the use of compositions comprising an aqueous solution of an alginate or a colloidal emulsion of a rubber-like substance either with or without an alginate, together with suitable fillers, and compounds capable of producing multivalent metallic ions as the basic ingredients constituting a dispensable or applicable facial composition which, when applied to the skin, will set in situ to form a facial mask or covering. The mask or covering so formed provides a facial treating medium which contains therein beneficial ingredients that are constantly applied to the skin by the medium of the mask or covering while maintaining the skin in a moist and relaxed condition without impeding facial skin respiration.

The present invention also includes the method of dispensing the facial treating composition from an aerosol-type container by the use of argon gas or a mixture of an argon gas and a gas more soluble with the composition, for example, nitrous oxide, as a propellant.

It has also been found that the compositions of this invention can be stored for substantial periods of time in compartmentalized containers in which the liquid ingredients are separated from the solid ingredients by an impervious diaphragm or the like and the can pressurized with an insoluble gas, such as argon or the like, so that puncturing the diaphragm permits the solids to mix with the liquid under the pressure of the gas, thereby forming an aerosol or gaseous-dispensable product.

This invention has as an object the provision of new and

2

valuable compositions capable of being applied to the human body to form thereon a gelated mask or covering capable of providing beneficial treating effects.

Another object of this invention is to provide a composition having as its basic ingredients a rubber-like emulsion either with or without a soluble alginate together with a filler material and a compound or compounds capable of providing multivalent metallic ions which, when applied to the human body, will solidify in situ to form a beneficial treating mask or covering thereon.

A further object of this invention is to provide a composition for application to the external surface of the human body. When the composition is applied to the face, for example, in a cleansing or beauty treatment, it solidifies at a controlled rate in order that as little inconvenience as possible will be experienced by the person being treated. To this end, the composition is prepared so that it will not have irritant qualities and at the same time when set on a person's skin or face, particularly in the form of a mask, will have the requisite astringent, cleansing and soothing qualities. The nature of the composition is such that it will form a stiff elastic gel in situ closely adhering to all portions of the face being treated and without in any way irritating the skin.

Still another object of this invention is to provide a facial treating composition in which the emulsified ingredients are separated from the solid ingredients in a compartmentalized container in the presence of a propellant such as argon gas so that, upon mixture of the solids and the liquid, a dispensable composition is produced which is capable of being dispensed with a minimum of foaming and which will gelate at a controlled rate on the face to form a beautification mask.

Other objects of the invention will be apparent from examination of the specification and claims.

According to one aspect of the invention, an emulsion and a powder in proper proportions one to the other for forming the desired composition are kept in separate compartments, separated by a diaphragm, in a pressurizable container until the composition is to be used. The emulsion contained in one compartment has as its principal ingredients a natural or synthetic latex or a resin latex together with an accelerator, defoamer, and a surface activating agent. The powder is kept in the other compartment above the emulsion and separated from the emulsion by the puncturable diaphragm which is impervious to either the emulsion or the fine particles of the powder. The powder has as its principal ingredients a protective colloid, a suitable filler, a buffering agent, and a compound capable of supplying multivalent metallic ions. There is further included in the facial composition substances having astringent, tonic and cleansing qualities, and there may be mentioned in this connection calcium oxide, alum and hamamelidin and liquid castile soap. The first two mentioned substances have astringent properties and in addition function in the final composition as binding agents. The hamamelidin, more commonly known as "witch hazel," possesses in addition to its astringent properties, tonic qualities. Liquid castile soap enhances the cleansing action. In addition to the above ingredients, there may be added to the composition various other substances, as for example, perfume, menthol to serve as a cooling agent, and eucalyptus oil to serve as a soothing agent. The container and contents are pressurized by an inert gas, preferably an inert gas which produces a minimum of foaming, such as argon.

When application of the composition is desired, the diaphragm separating the powder from the emulsion is punctured, thereby allowing the powder to mix with the emulsion under pressure of the inert gas which supplies

the propellant force to dispense the composition from the container ready for its intended use.

Separation of the emulsion and the powder by the impervious diaphragm allows for prolonged storage so that, when needed, the composition can be automatically mixed and dispensed as a ready-to-use product in the desired form.

It has been found that argon gas constitutes an excellent propellant and dispensing agent for the compositions of this invention. It has also been found that argon constitutes an aerosol propellant which will dispense the product with a minimum of foaming. Control of foaming may be important where it is preferred that the composition to be dispensed shall have a creamy consistency having a minimum number of bubbles therein. Argon gas has been found to be the propellant gas that is least soluble in the compositions of this invention and consequently the use of such a gas makes it possible to dispense a heretofore undispensible composition.

It is apparent that the compositions described above, if storage is not required, can be mixed and applied directly, as in the case of treatment of the face by brushing or patting on with the hand.

Some specific examples of suitable compositions are as follows:

Example 1

Emulsion:

- 80 cc. 50% G.R.S. butadiene-styrene latex
- 1 cc. Dow-Corning silicone anti-foam
- 4 cc. Amerchol L-101
- 300 cc. water

385 cc. emulsion

Powder:

- 10 g. potassium alginate
- 60 g. diatomaceous earth (fine mesh)
- 10 g. calcium sulfate (pure precipitate)
- 1.4 g. tetrasodium pyrophosphate
- 81.4 g. powder

The powders are blended in a ball mill to bring about intimate mixing and dispersion of the various ingredients throughout. Ninety-five cc. of the emulsion are placed in the bottom of an aerosol-type container. An impervious diaphragm is placed over the emulsion so as to separate the container into two compartments. 20 grams of the powder from the ball mill are placed in the top part of the container. The top of the container is then sealed so that the diaphragm or membrane separates the liquid from the powder and forms within the container two separate compartments. The container is charged with argon gas to about 30 p.s.i. through the valve in the telescoping plunger head of the aerosol-type container. In this condition, the container and its contents are ready for storage.

After the container thus prepared is stored for a short time, the telescoping head is pressed down so that the end of the telescope punctures the diaphragm allowing the powder to mix with the emulsion to form the desired composition under the pressure of the argon gas. The release valve on the head is pressed and the contents of the can are propelled from the can ready for use as a composition having a creamy consistency having the desired pliability. This composition gels within a period of three minutes into a strong elastic mask when applied to a person's face.

Example 2

An emulsion from natural latex (hevea) was formed as follows:

- 80 cc. 50% natural latex
- 1 cc. Dow-Corning silicone anti-foam
- 1 cc. 2-ethylhexanol
- 300 cc. water
- 382 cc. emulsion

Ninety-five cc. of this emulsion and 20 grams of the powder described in Example 1 are placed in a container as described in Example 1, and the resulting composition, when dispensed from the aerosol container, produces a composition which soon coagulates or gels on a person's face to a strong elastic mask which thereafter may readily be peeled from the face.

Natural or synthetic latices may be coagulated or gelled by two basic methods:

(1) Coagulation by dehydration (the removal of water) where by a drying method the particles approach each other and finally make contact. Latices may also be coagulated or gelled by the use of an organic solvent, such as alcohol or acetone. This is another form of dehydration.

(2) The second method of coagulation or gelling a natural or synthetic latex is by the reduction of the particle charge. Coagulation by reduction of the charge on the particles can be brought about in several ways, such as by the addition of acid (alginic acid), salts, compounds yielding bi- or tri-valent metal ions or surface active agents, etc. The salt, for example, may be potassium acid phthalate or tetrasodium pyrophosphate; the multivalent metal ion compound may be calcium sulfate or the like; the surface active agent may be 2-ethyl hexanol.

The second method is preferred in the practice of this invention, but either method can be used.

Exemplary of the rubberlike substances that may be used to form the emulsion are natural rubber latices produced by the hevea tree; G.R.S. latices which consist of polymers of butadiene or copolymers of butadiene and styrene; neoprene latices which are polymers of chloroprene and other polymerizables, the major constituent of which is chloroprene; nitrile latices which are copolymers of acrylonitrile and butadiene; and resin latices of a large variety including polyacrylic acid esters and polyesters, polyamides, plasticized and unplasticized polystyrene, polyvinyl butyrals, plasticized and unplasticized polyvinyl chloride polymers and copolymers, plasticized and unplasticized polyvinylidene chloride, and polyvinyl ester plastic emulsions, and the like.

Other ingredients used in the emulsion are plasticizers (e.g., diethyl phthalate, dimethyl phthalate, dibutyl phthalate); defoamers (e.g. silicones, silicone emulsions, Nopco 1497-V—Nopco Chem. Co., Foamrex S—Socony-Vacuum, and higher aliphatic alcohols); surface active agents (e.g., 2-ethylhexanol, undecanol, and Amerchol L-101 which is a liquid multi-sterol non-ionic surface active penetrant, emollient and emulsifier. The sterols present in Amerchol L-101 are cholesterol, agnosterol, lanosterol, dehydrocholesterol, and cerebrosterol, present in their free forms—as the alcohols; and accelerators (e.g., zinc dimethyl dithiocarbamate).

It is to be understood that the protective colloids can either be incorporated with the emulsion or can be mixed with the powder, as desired.

The powder formulation contains protective colloids, such as those which are essentially derivatives of alginic acid (e.g., potassium, sodium or ammonium alginate, triethanolamine alginate), Irish moss derivatives, various other seaweed derivatives, carboxymethyl cellulose, carboxyethyl cellulose, methyl cellulose, water-soluble polyelectrolytes, guar gums, caseinates, polysulfates, agar-agar, etc. Multivalent metallic ion containing compounds used in the powder formulation may be calcium sulfate, lead monosilicate, and the like. Buffering agents used may be trisodium phosphate, tetrasodium pyrophosphate, polyphosphates, sodium acetate, anhydrous sodium carbonate, and the like; and fillers used may be diatomaceous earth, kaolin, ground limestone, calcium carbonate, powdered asbestos, magnesium silicate, silica, magnesium carbonate, fuller's earth, precipitated chalk, and the like.

The above powdered materials are ground and mixed so as to constitute a fine, well dispersed mixture of solid

5

materials for mixing with the emulsion water to form the desired facial compositions.

Suitable compositions containing the protective colloid in the emulsion include the following:

Example 3

EMULSIONS

Natural latex, 50%	Cc.
Silicone AF	10
Tergitol ¹	1
Potassium alginate	1
Water	2.5
	80.5
	95.0
G.R.S., 50%	10
Foam-X	1
2-ethylhexanol	1
Potas. alg.	2.5
Water	80.5
	95.0
Neoprene	10
Nopco 1497	1
Undecanol	1
Potas. alg.	2.5
Water	80.5
	95.0
	95.0
	30
	G.
Calcium sulfate	3.0
Diatomaceous earth	20.0
Tetrasodium pyrophosphate	1.5
	24.5
Sodium silicofluoride	1.3
Tetrasodium pyrophosphate	0.5
Lead monosilicate	5.0
Magnesium silicate	25.0
	31.8
Calcium	3.0
Tetrasodium pyrophosphate	1.2
Magnesium carbonate	22.0
	26.2

POWDERS

Calcium sulfate	3.0
Diatomaceous earth	20.0
Tetrasodium pyrophosphate	1.5
	24.5
Sodium silicofluoride	1.3
Tetrasodium pyrophosphate	0.5
Lead monosilicate	5.0
Magnesium silicate	25.0
	31.8
Calcium	3.0
Tetrasodium pyrophosphate	1.2
Magnesium carbonate	22.0
	26.2

¹Tergitol used in this formulation is a wetting agent known as sodium heptadecyl sulfate.

Each of the above three powders was processed in a ball mill to produce a finely divided, thoroughly blended and mixed product.

Each of the three powders was mixed with one of the above three emulsions in the manner described in Example 1. The resulting dispensed compositions set in a period of from about 2 to about 5 minutes, and may be used for facial treating compositions.

Example 4

Nat. latex, 50%	Cc.
Silicone AF	15
Tergitol	1
Na alginate	1
Water	2
	76
	95
G.R.S. 50%	15
Foam-X	1
2-ethylhexanol	1
Na alginate	2
Water	76
	95

6

Neoprene 50%	Cc.
Nopco 1497	15
Undecanol	1
Na alginate	1
Water	2
	76
	95

Example 5

Nat. latex, 50%	20
Silicone AF	1
Tergitol	1
Ammon. alg.	1.5
Water	71.5
	95.0
G.R.S. 50%	20
Foam-X	1
2-ethylhexanol	1
Ammon. alg.	1.5
Water	71.5
	95.0
Neop. 50%	20
Nopco 1497	1
Undecanol	1
Ammon. alg.	1.5
Water	71.5
	95.0

Example 6

Nat. latex, 50%	25
Silicone AF	1
Tergitol	1
Triethanolamine alginate	1
Water	67
	95
G.R.S. 50%	25
Foam-X	1
2-ethylhexanol	1
Triethanolamine alginate	1
Water	67
	95
Neoprene 50%	25
Nopco 1497	1
Undecanol	1
Triethanolamine alg.	1
Water	67
	95

Each of the emulsions set forth in Examples 4, 5 and 6 was mixed with one of the three powders of Example 3 in the manner set forth in Example 1, and the resulting compositions obtained thereby set within a period of from about 2 to about 5 minutes and are therefore well adapted for facial treating purposes.

The compositions of this invention, when applied to the surface of the body, for example the face, will, after a short period of time, usually 2 to 5 minutes depending on the ingredients used, form in situ a gelated covering or mask which fits snugly to the face. From this mask exudes the beneficial treating ingredients such as oil, astringent, antibiotics, etc., which are incorporated with the composition and are adsorbed by the pores of the skin, thereby causing a cleansing and revitalizing action.

The mask formed from the compositions of this invention, when set on the face and allowed to remain for periods of about 20 to 30 minutes, maintain the covered skin in a moist condition while permitting respiration of the skin. The result of the treatment with the mask is a facial in one application or step, which heretofore re-

7

quired several steps. In the usual facial, for example, the skin must first be cleansed. After cleansing, an astringent is applied to tone the skin and prepare it for further treatment. After toning, a beneficial oil or cream is applied and massaged into the skin. The composition of this invention performs all three of these steps in one application simply by the formation of the beneficial treating mask on the face.

Further examples of emulsions suitable for facial treating are as follows:

Example 7

Nat. latex 50%	10	Cc.
Silicone AF	1	
Amerchol L-101	2	
Perfume	Q.s.	
Water	79.5	
Potassium alginate	2.5	
	95.0	
G.R.S. 50%	10	
Silicone	1	
Amerchol	2	
Perfume	Q.s.	
Water	79.5	
Potassium alginate	2.5	
	95.0	
Neoprene 50%	10	
Silicone	1	
Amerchol	2	
Perfume	Q.s.	
Water	79.5	
Potassium alginate	2.5	
	95.0	

Example 8

Nat. latex 50%	15	
Silicone AF	1	
Amerchol L-101	3	
Perfume	Q.s.	
Water	74	
Sodium algin	2	
	95	
G.R.S. 50%	15	
Silicone	1	
Amerchol	3	
Perfume	Q.s.	
Water	74	
Sodium algin	2	
	95	
Neoprene 50%	15	
Silicone	1	
Amerchol	3	
Perfume	Q.s.	
Water	74	
Sodium algin	2	
	95	

Example 9

Nat. latex 50%	20	
Silicone AF	1	
Amerchol L-101	3	
Perfume	Q.s.	
Water	69.5	
Ammonium alginate	1.5	
	95.0	

8

G.R.S. 50%	20	Cc.
Silicone	1	
Amerchol	3	
Perfume	Q.s.	
Water	69.5	
Ammonium alginate	1.5	
	95.0	
Neoprene 50%	20	
Silicone	1	
Amerchol	3	
Perfume	Q.s.	
Water	69.5	
Ammonium alginate	1.5	
	95.0	

The powders set forth above in Example 3, but with the tetrasodium pyrophosphate content doubled, were each mixed with one of the emulsions set forth in Examples 7, 8, and 9 in the manner described in Example 1. The resultant dispensed product of each of these compositions was applied to the face to form a facial mask. It was found that the mask gelled in situ within a period of three to five minutes and, after application for a period of about 30 minutes, the mask peeled easily from the face, leaving the skin cleansed, toned, and revitalized.

The time for setting the mask can be controlled by varying the amounts of the accelerator added to the composition so as to allow the person applying the mask time in which to apply the composition to form the desired mask or covering on the body.

It is pointed out that the protective colloids described above are used in the above compositions to enhance their shelf life and these may be incorporated in either the emulsion or the powder or in both. The principal gel-forming ingredient in the above compositions is a latex of a rubberlike composition. The following Example 10 shows compositions of this invention but without the use of protective colloids, such as an alginate, to enhance shelf life:

Example 10

Nat. latex 50%	20	Cc.
Silicone	1	
Amerchol L-101	3	
Perfume	Q.s.	
Water	71	
	95	
G.R.S. 50%	20	
Silicone	1	
Amerchol	3	
Perfume	Q.s.	
Water	71	
	95	
Neoprene 50%	20	
Silicone	1	
Amerchol	3	
Perfume	Q.s.	
Water	71	
	95	

The powders set forth above in Example 3, but with the tetrasodium pyrophosphate content doubled, were each mixed with one of the emulsions set forth in Example 10 in the manner described in Example 1. The resultant dispensed product of each of these compositions was applied to the face to form a facial mask. It was found that the mask gelled in situ within a period of 3 to 5 minutes and, after application for a period of about

30 minutes, the mask peeled easily from the face leaving the skin cleansed, toned, and revitalized.

The compositions set forth in the invention can be used as padding, resilient protective covering, surgical covering, and the like, for the body, by varying the ingredients as described above and by including other beneficial agents, such as medicaments, antibiotics, burn remedies, antihistamines, cortisone, antiseptics, germicides, anesthetics, etc.

Other solids which normally would be incompatible with the powdered ingredients mentioned above when stored for a substantial period of time may also be incorporated by providing still another compartment in addition to that separating the emulsion and the powder. The puncturing of the film separating the powders, the incompatible solid ingredient, and the emulsion will produce the composition desired.

Considering another aspect of the present invention, any of the salts of alginic acid, such as sodium, potassium or ammonium alginate, which are soluble in water and possess hydrophilic colloidal properties, may serve as one of the basic ingredients for the formation of the gel in situ when calcium sulphate or other multivalent metal ion-producing salt is incorporated in an aqueous solution of the alginate in the presence of a suitable filler, and preferably also with another salt such as sodium carbonate or the like to assist in controlling the gelling time of the alginate.

It has been discovered that an aqueous solution of an alginate when combined with calcium sulphate, and preferably anhydrous calcium sulphate, or other water-soluble salt of a multivalent metal and an inert filler such as calcium carbonate forms a stiff elastic gel. Sodium carbonate may also be employed in the composition, the sodium carbonate assisting in controlling the time in which the gel will set. Anhydrous sodium carbonate is preferably employed. These compositions, because of their unique properties, are well suited for use as a base for facial treating compositions having cleansing and softening properties.

Essentially then, a composition such as this is comprised of an alginate, such as sodium, potassium or ammonium alginate and the like, with sodium alginate being preferred, admixed with an inert filler and a water-soluble salt of a multivalent metal, such as anhydrous calcium sulphate. Anhydrous sodium carbonate and the like substances capable of assisting in controlling the formation time of the gel are also desirable components of these compositions. The inert filler is an inert factor in the composition and functions as a binding agent to give body to the composition when the gel is formed. This inert factor or inert filler may be powdered asbestos or clay or other similar material so long as it does not possess irritant qualities. There is further included in the composition substances having astringent, tonic and cleansing qualities and there may be mentioned in this connection calcium oxide, alum and hamamelidin and liquid castile soap. The first two mentioned substances have astringent properties and in addition function in the final composition as binding agents. The hamamelidin, more commonly known as "witch hazel," possesses in addition to its astringent properties, tonic qualities. Liquid castile soap enhances the cleansing action. All of the above-mentioned compounds have astringent, cleansing or tonic properties and impart to the skin a beneficial treatment when the mask solidifies in situ on the face. In addition to the above mentioned compounds, perfumes, rose water, menthol, eucalyptus oil, and many other like substances can be employed in small quantities so that when the mask has solidified in situ these components which are beneficial treating agents are imparted to the skin where they effectively treat the face in a beneficial manner.

The above mentioned materials, namely the aqueous solution of the water-soluble salt of alginic acid, the

water-soluble salt of a multivalent metal, the gelling time controlling agent, and a suitable inert filler, are kept in a pressurized can or plastic container until such time as it is desired to apply the composition at which time it is dispensed from the container and the resulting composition is applied to the area of the skin of the individual undergoing treatment in the form of a mask. The dispensed composition, in the form of an aqueous solution, upon application to the face and after a predetermined period of time, gels and sets, the active factors of the composition working to cleanse and soften the skin. When the gel formation has been completed, the mask is then stripped from the skin and the treatment is then concluded in the usual fashion.

In addition to the above ingredients, there may be added to the composition various other substances, for example, perfume, menthol to serve as a cooling agent, and eucalyptus oil to serve as a soothing agent.

Broadly the range of proportions of the various ingredients, according to this aspect of the invention, may be as follows:

	Parts by weight
Alginate	5 to 20
Inert filler	30 to 100
Astringent	1 to 8
Anhydrous sodium carbonate, calcium sulphate	1 to 20
Liquids	50 to 250

A preferred range of proportions of the several ingredients is set forth as follows:

	Parts by weight preferred
Alginate	3 to 10
Inert filler	50 to 75
Astringent	1 to 6
Anhydrous sodium carbonate, calcium sulphate	5 to 10
Liquids	75 to 150

Further, the preferred composition, according to the present invention, is set forth in the following table:

	Parts by weight preferred
Alginate	10
Inert filler	65
Astringent	3
Anhydrous sodium carbonate, calcium sulphate	5
Liquids	125

It will be evident from the above preferred composition that there are essentially 83 grams of powder to about 125 grams of liquid which is predominantly distilled water for one application. The formula may be varied depending on the size or number of applications.

To appreciate more fully the nature and scope of this aspect of the present invention, there follows examples of still other formulations prepared in accordance with the invention:

Example 11

Sodium alginate	grams	5
Calcium carbonate	do	33
Calcium oxide	do	1
Anhydrous sodium carbonate, or anhydrous calcium sulphate	grams	2
Witch hazel (extract of hamamelidin in a solution of 14% alcohol and 86% water)	grams	17
Distilled water	do	23
Rose water	do	14
Perfume	minims	6
Menthol	grains	1
Eucalyptus oil	minims	2
Liquid castile soap	do	3

11

Example 12

Sodium alginate	grams	10
Powdered asbestos	do	52
CaSO ₄	do	4
Anhydrous calcium sulphate	do	4
Witch hazel (extract of hamamelidin in a solution of 14% alcohol and 86% water)	grams	29
Distilled water	do	35
Perfume	minims	6
Menthol	grains	1
Eucalyptus oil	minims	2
Liquid castile soap	do	3

Example 13

Sodium alginate	grams	10
Calcium carbonate	do	61
Alum	do	7
Anhydrous sodium carbonate, or anhydrous calcium sulphate	grams	5
Witch hazel (extract of hamamelidin in a solution of 14% alcohol and 86% water)	grams	41
Distilled water	do	52
Rose water	do	46
Perfume	minims	6
Menthol	grains	1
Eucalyptus oil	minims	2
Liquid castile soap	do	3

Example 14

Sodium alginate	grams	10
Powdered asbestos	do	76
Calcium sulphate	do	6
Anhydrous sodium carbonate	do	7
Witch hazel (extract of hamamelidin in a solution of 14% alcohol and 86% water)	grams	64
Distilled water	do	75
Rose water	do	51
Perfume	minims	6
Menthol	grains	1
Eucalyptus oil	minims	2
Liquid castile soap	do	3

Example 15

Potassium alginate	grams	10
Calcium carbonate	do	97
Calcium oxide	do	8
Anhydrous sodium carbonate, or anhydrous calcium sulphate	grams	10
Witch hazel (extract of hamamelidin in a solution of 14% alcohol and 86% water)	grams	79
Distilled water	do	80
Rose water	do	68
Perfume	minims	6
Menthol	grains	1
Eucalyptus oil	minims	2
Liquid castile soap	do	3

Example 16

Ammonium alginate	grams	10
Powdered asbestos	do	68
Alum	do	3
Anhydrous sodium carbonate, or anhydrous calcium sulphate	grams	16
Witch hazel (extract of hamamelidin in a solution of 14% alcohol and 86% water)	grams	87
Distilled water	do	90
Rose water	do	71
Perfume	minims	6
Menthol	grains	1
Eucalyptus oil	minims	2
Liquid castile soap	do	3

In all of the foregoing examples, the solid substances may be compounded together or apart from the liquid substances.

12

As mentioned above, the anhydrous sodium carbonate or the like serves as a convenient timer to assist in controlling the time in which the gel sets. The anhydrous nature of the calcium sulphate or the like may also be employed, although somewhat less conveniently, to control the time of gelation. As a rule of thumb, it can be said that for each gram of anhydrous sodium carbonate or anhydrous calcium sulphate, it will take the composition one minute to set. It is normally considered undesirable if the treatment is of too brief a duration as will result if the composition sets too rapidly. By the same token, it is also considered undesirable for the treatment to be unduly prolonged which will result if the composition sets over too long a period of time. It has been found that the composition should set in less than about twenty (20) minutes and not before about three (3) to five (5) minutes.

It is to be understood that the invention is not limited to the specific proportions set forth or the ingredients referred to above. Any changes or modifications obvious to one skilled in the art are deemed to be within the spirit and scope of the invention.

What is claimed is:

1. A skin treating mask for applying a treatment to the skin comprising a water-insoluble, flexible coagulation formed in situ on the skin, said coagulation formed from a quick-setting composition containing essentially a material selected from the group consisting of a water-soluble alginate, an emulsion of a rubber-like latex, and mixtures thereof, having therein a water-soluble salt of a multivalent metal and a filler, said mask embracing the skin to effect a beneficial treatment thereof and removable therefrom by peeling after said treatment.

2. A face treating method which comprises adding to a mixture of a material selected from the group consisting of a water-soluble alginate, an emulsion of a rubber-like latex, and mixtures thereof, a water-soluble multivalent metal salt and an inert filler non-irritating to the skin, in an amount sufficient to form a spreadable paste, forming a paste therefrom and spreading said paste upon the face to be treated, permitting said paste to remain on the face until it sets to a moist flexible peelable coagulum mask in situ and closely adherent to the face, and thereafter peeling said coagulum mask from the face.

3. A composition for applying a coating to the surface of the skin to effect a beneficial treatment thereof which comprises a coagulable composition, said composition containing a material selected from the class consisting of a water-soluble alginate, an emulsion formed from a rubber-like latex, a water-soluble salt of a multivalent metal, and mixtures thereof, a filler non-irritating to the skin, and a relatively insoluble propellant gas, said composition forming a water-insoluble coagulating coating in situ when applied to the surface of the skin, said coating being peelable therefrom after said treatment.

4. The composition as claimed in claim 3 in which a skin treating agent is incorporated in said composition.

5. The composition as claimed in claim 3 in which a protective colloid is incorporated in said emulsion.

6. The composition of claim 5 in which a protective colloid is incorporated in said emulsion, said colloid being selected from the class consisting of sodium alginate, potassium alginate, ammonium alginate, and triethanolamine alginate.

7. The composition of claim 4 in which the treating agent is a medicament.

8. The composition of claim 3 in which the rubber-like latex is selected from the class consisting of natural rubber, copolymers of butadiene-styrene, copolymers of substituted butadiene-styrene, and polymers of chloroprene.

9. A composition for applying a coating to the surface of the skin to effect a treatment thereof which comprises a composition, said composition containing from about 8 cc. to about 30 cc. of a 50% solution of a rubber-like latex, from about 100 cc., to about 50 cc. of

water, from about 1 to about 5 grams of a water-soluble salt of a multivalent metal, and from about 10 to about 40 grams of an inert filler, and a relatively insoluble propellant gas, said composition forming a coagulated coating in situ when applied to the skin and capable of being peeled therefrom after said treatment.

10. The composition of claim 9 in which an anti-foaming agent is incorporated in said composition.

11. A skin treating mask for applying a treatment to the skin comprising a water-insoluble, flexible, coagulation formed in situ on the skin, said coagulation formed from a quick-setting composition containing essentially an emulsion of a rubber-like latex having therein a water-soluble salt of a multivalent metal and a filler, said mask embracing the skin to effect a beneficial treatment thereof and removable therefrom by peeling after said treatment.

12. The facial treating mask as claimed in claim 11 in which said composition has incorporated therein a skin treating agent.

13. A method of treating the skin which comprises mixing together a material selected from the class consisting of a water-soluble alginate, an emulsion formed from rubber-like latex, and mixtures thereof, a water-soluble salt of a multivalent metal and an inert filler non-irritating to the skin in an hermetically sealed container under pressure to form a water-insoluble dispensable coagulating composition, dispensing said composition from said container to the area of skin to be treated whereby said composition quickly coagulates in situ, and peeling said coagulated composition from the skin after said treatment.

14. A method of treating the skin which comprises maintaining in separate compartments separated by a dislodgeable wall in a sealed package, a material selected from the class consisting of a water-soluble alginate, a rubber-like latex, and mixtures thereof, a water-soluble salt of a multivalent metal and an inert filler non-irritating to the skin, dislodging said wall to effect communication between compartments, mixing the contents of said compartments in said sealed package to form a dispensable quick-setting composition, dispensing said composition from said package to an area of skin to be treated, whereby said composition quickly coagulates in situ to form a rubber-like mask, and peeling said coagulated mask from the skin after said treatment.

15. The method of claim 14 in which the sealed package is maintained under pressure of a relatively insoluble gas to effect dispensing of said composition.

References Cited in the file of this patent

UNITED STATES PATENTS

	891,689	Green	June 23, 1908
	1,106,921	Bucher	Aug. 11, 1914
	1,353,320	Crommett	Sept. 21, 1920
	1,756,152	Hashimoto	Apr. 29, 1930
	1,921,676	Kahn	Aug. 8, 1933
	1,962,261	Speiden	June 12, 1934
10	2,013,651	Erdahl	Sept. 10, 1935
	2,021,058	Harrison	Nov. 12, 1935
	2,030,222	Newton	Feb. 11, 1936
	2,216,485	Brandt	Oct. 1, 1940
	2,229,549	Carson	Jan. 21, 1941
15	2,301,426	Lovell	Nov. 10, 1942
	2,358,730	Nelson et al.	Sept. 9, 1944
	2,384,804	Anderson	Sept. 18, 1945
	2,433,656	Egan	Dec. 30, 1947
	2,524,590	Boe	Oct. 3, 1950
20	2,563,593	Engel	Aug. 7, 1951
	2,602,042	Abbott	July 1, 1952
	2,635,067	Steiner	Apr. 14, 1953
	2,723,200	Pyenson	Nov. 8, 1955
	2,728,495	Eaton	Dec. 27, 1955
25	2,816,873	Nogradi	Dec. 17, 1957

OTHER REFERENCES

- Schwartz: Surface Active Agents, Interscience Pub. N.Y., 1949, pp. 516-7.
- 30 American Professional Pharm., September 1939, pp. 494, 495.
- Moncrieff: Perf. and Essential Oil Record 42:8, August 1951, pp. 257-262.
- Allen: Soap, Perf., and Cos., February 1941, pp. 106-35 108.
- Lesser: Drug and Cos. Ind., 61:6, December 1947, pp. 761, 762, 842-847.
- Barron: Modern Synthetic Rubbers, Chapman Hall Ltd., London, 3rd Ed., 1949, pp. 219-223, 228-231, 40 433-439, 519-522, 526, 631, 538-540.
- Flint: Chem. and Tech. of Rubber Latex, D. Van Nostrand Co., N.Y., 1938, pp. 352-369.
- Skinner: The Science of Dental Materials, W. B. Saunders, Phila., 1954, pp. 71-77.
- 45 McGregor: Silicones and Their Uses, McGraw-Hill Book Co., N.Y., 1954, pp. 87-90.

UNITED STATES PATENT OFFICE
CERTIFICATION OF CORRECTION

Patent No. 2,996,432

August 15, 1961

John P. Modderno

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 9, for "This invention has as an object the provision of new and" read -- This invention relates to compositions to be applied in --; column 5, line 44, after "Calcium" insert -- sulfate --; column 10, lines 27, 37, and 48, before "calcium", each occurrence, insert -- or --.

Signed and sealed this 3rd day of April 1962.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents