

**United States Patent** [19]**Chambon et al.**[11] **3,862,906**[45] **Jan. 28, 1975****[54] COMPOSITION FOR CLEANING HANDS  
AND OTHER PARTS OF THE BODY****[75] Inventors: Maurice Chambon, Genis-Laval;  
Jean Neel, Lyon, both of France****[73] Assignee: Progil, Paris, France****[22] Filed: Dec. 21, 1971****[21] Appl. No.: 210,570****[52] U.S. Cl. .... 252/117, 252/89, 252/132,  
252/557, 252/550, 252/DIG. 2****[51] Int. Cl. .... C11d 9/30, C11d 15/04, C11d 9/32****[58] Field of Search ..... 252/121, DIG. 2, DIG. 5,  
252/DIG. 3, 349, 311, 117, 132, 557, 130,  
550, 129; 260/29.6 RD, 29.6 WA, 29.6 PN****[56] References Cited****UNITED STATES PATENTS**

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326, 327, 408-414.*Primary Examiner—John D. Welsh**Attorney, Agent, or Firm—Browdy and Neimark***[57] ABSTRACT**

A cleaning composition for the hands and body which is a mixture of an aqueous emulsion of polymers or copolymers and at least one anionic or non-ionic emulsifying agent, a fat emulsive soap and water.

**4 Claims, No Drawings**

## COMPOSITION FOR CLEANING HANDS AND OTHER PARTS OF THE BODY

The present invention relates to new compositions intended for cleaning the hands and other body parts. Those compositions contain in an associated form a quantity of water sufficient for the washing and rinsing and to suppress drying.

Until the present two essential means are utilized for an efficient cleaning, one based upon the use of a solvent and the other based upon the use of soap.

It is known that compositions using one or several organic solvents, in the form of liquids, gels, or pastes, remove fats conveniently, but are not very efficient with regard to "lean" stains. In these cases, it is often necessary to utilize a further water-washing. Moreover, the smell, toxicity, and sometimes flammability of these compounds limit their use.

The use of soaps, alkaline salts of fatty acids, the most widespread of them being probably sodium copra soap, gives more satisfying results in the presence of a large quantity of water. The main disadvantage of this process is that it requires a large quantity of water for washing and rinsing. However, there are cases when only little water is at one's disposal. Moreover, the use of an absorbing material is necessary for drying washed parts.

A report relating to products for hand washing will be found in MMrs. Schwartz, Perry and Berch's book entitled "Surface Active Agents and Detergents" — Volume II, pages 616-617.

An object of the present invention is to overcome the above-mentioned disadvantages and to provide compositions which include in themselves the quantity of water and soap sufficient for cleaning the hands, for example, and which contain a polymer emulsion stable during storage but able to break under mechanical action to give rise to the formation of aggregates which retain water and staining materials. Since the water is absorbed in this way, further drying becomes unnecessary.

The present invention relates to compositions for cleaning the hands and any other body parts, obtained by mixing an aqueous emulsion of (a) polymers or copolymers containing one or two anionic or non-ionic emulsifying agent(s) in a quantity fairly equal to the critical micelle concentration and (b) a quantity of polymers or copolymers the dry extract of which represents 40 to 60% of the emulsion weight, (c) one or several fat emulsive soaps and (d) an additional quantity of water so that the total water percentage in the final mixture is between 40 and 80% by weight and preferably 55 to 65%. Further, these compositions may contain usual soap additives.

The polymer or copolymer aqueous emulsion, which is obtained by techniques which are well known in the art uses necessarily one or more monomers, at least one emulsifying agent and one or more polymerization initiating agents. It represents between 20 and 90% by weight of the final composition, preferably 60 to 85%.

The monomers are chosen from among those which polymerize in emulsion and the polymers or copolymers of which form, when coagulating, supple and not very sticky aggregates, strongly absorbing water and staining materials. For example, without being limitative to the field of the invention, typical monomers include acryl and methacryl esters such as methyl, ethyl

and butyl, acrylonitrile, vinyl acetate, and styrene. The polymers or copolymers represent 40 to 60% of the emulsion by weight.

The emulsifying agents must be chosen from among anionic or non-ionic emulsifying agents, in order to give simultaneously to the emulsion an excellent storage stability and a very low strength with regard to the possibility of breaking the emulsion under mechanical shearing action. Without limiting the invention, examples include alkaline soaps of fatty acids from  $C_8$  to  $C_{20}$  and mixtures thereof, sulfates of alkali metals and heavy alcohols from  $C_8$  to  $C_{20}$  and mixtures thereof, surface-active sulfonated derivatives of alkaline or alkali earth metals, such as sodium or potassium alkylbenzene sulfonates, alkaline alkyl-sulfo-succinates, mixtures of alkaline soaps and the preceding sulphates or sulfonated derivatives.

Those products have a concentration in the emulsion that is very near to the critical micelle concentration.

Initiating agents are chosen which permit radical polymerization, as are commonly used. Without limiting the invention, examples include sodium or ammonium persulfate used alone or combined with an activating agent, such as sodium bisulfite or ferrous chloride, forming with it a redox system.

Apart from the polymer aqueous emulsion, another main constituent of the compositions according to the invention is one or more fat emulsive soaps. They may be chosen from among the salts of alkali metals or amines and of fatty acids, alone or mixed. Non-limiting examples include stearin or triethanolamine soap, or potassium lauric soap. They represent between 2 and 10% by weight of the final composition.

The additional quantity of water is such that the total percentage of water in the final mixture is between 40 and 80%, preferably 55 to 65%.

Moreover usual soap additives such as skin softening products, perfumes or coloring agents may be used in addition. They occur as not to exceed 10% by weight in the final mixture.

The action of those compositions may be described in a schematic way without this explanation being limitative. In a first step the soap and water effect cleaning of the soiled parts according to the well known process of emulsification of the staining materials. After some time the mechanical action produced by the rubbing of the part to be cleaned gives rise to the coagulation of the polymer which presents itself in aggregate form which retains the water and the staining materials. Those aggregates separate and are easily removed from the skin.

Composition quantities to be used for an efficient cleaning are very small. For example, it is possible to wash hands conveniently, even if they are strongly soiled with oils or fats by using from 1 to 10 cm<sup>3</sup>, preferably 1 to 2 cm<sup>3</sup> of those products which generally present themselves under the form of viscous liquids.

In the examples hereinafter, which are not limitative and which illustrate the invention, the parts are by weight.

### EXAMPLE 1

An aqueous emulsion based upon polymer latex is prepared according to the process described hereinafter:

In a charge spherical flask, a solution is prepared with the following raw materials:

Distilled water	180	parts
Lauric acid	10.5	parts
Soda 36° Be	5.5	parts
Sodium laurylsulfate	0.65	parts
Ammonium persulfate	2.5	parts
Ethyl acrylate	360	parts
Acrylonitrile	44	parts

In a reactor situated under the charge spherical flask, a second solution made up of the following raw materials is brought to 80°C. under a nitrogen atmosphere:

Distilled water	360	parts
Lauric acid	10.5	parts
Soda 36° Be	5.5	parts
Sodium lauryl sulfate	0.65	parts

Once this temperature is reached, 2.5 parts of ammonium persulfate are added and charge flask content is poured into the reactor during a period of about 2 hours while maintaining the temperature between 82 and 85°C. The obtained emulsion is reheated again for 1 hour at 87°C. After cooling, the pH of the mixture is adjusted to 9.5-10 by adding 20 parts of a 20% ammoniacal solution.

A composition according to the invention is obtained by adding to 85 parts of the hereinabove emulsion 2 parts of stearin and triethanolamine soap, 2 parts of stearyl alcohol (skin softening agent) and 11 parts of water.

#### EXAMPLE 2

An emulsion is prepared under the conditions of Example 1 from the following raw materials:

Sodium dioctylsulfosuccinate	0.3	%	by weight
Sodium acetate . 3 H <sub>2</sub> O	0.07	%	by weight
Potassium persulfate	0.09	%	by weight
Sodium bisulfite in 2% solution	1.5	%	by weight
Butyl acrylate	22.3	%	by weight
Ethyl acrylate	21.5	%	by weight
Methacrylic acid	6.7	%	by weight
Distilled water	complement to 100	%	by weight

A composition according to the invention is obtained by mixing 80 parts of the emulsion hereinabove with 4 parts of stearin and triethanolamine soap, 4 parts of glycerol (skin softening agent) and 12 parts of water.

#### EXAMPLE 3

An emulsion is prepared under the conditions of Example 1 from the following raw materials:

Lauric acid	2	%	by weight
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Soda 36° Be	1.2	%	do.
Sodium lauryl sulfate	0.14	%	do.
Ammonium persulfate	0.16	%	do.
Butyl acrylate	32	%	do.
Acrylonitrile	9.3	%	do.
Distilled water	complement to 100	%	do.

A composition according to the invention is obtained in mixing 70 parts of the emulsion hereinabove, 2 parts of potassium lauric soap, 4 parts of copra alkanolamide (skin softening agent) and 24 parts of water.

It will be obvious to those skilled in the art that various changes may be made without departing from the scope of the invention and the invention is not to be considered limited to what is described in the specification.

What is claimed is:

1. A composition for cleaning the hands or other parts of the body without the utilization of additional water, consisting essentially of:

1. a polymer or copolymer, hydrophilic and insoluble in water, in the form of an aqueous emulsion containing an anionic or non-ionic emulsifying agent in a quantity approximately equal to the critical micelle concentration sufficient to give stability to said polymer or copolymer emulsion during storage but low strength with regard to the breaking of the emulsion under mechanical shearing action, said polymer or copolymer constituting 8-54% by weight of said composition, and which polymer or copolymer forms water and stain absorbing aggregates upon coagulation, said polymer or copolymer being based on at least one monomer selected from the group consisting of acryl and methacryl esters of methyl, ethyl and butyl and acrylonitrile;

2. 2-10% by weight of at least one fat emulsive soap selected from the group consisting of fatty acid salts of alkali metals or amines and mixtures thereof, wherein the total amount of components other than water in the composition is 20-60% by weight; and

3. 40-80% by weight water.

2. A composition according to claim 1 wherein the water in the final mixture is 55 - 65% by weight.

3. A composition according to claim 1 further including at least one member of the group consisting of skin softening agents, perfumes and coloring agents.

4. A composition according to claim 1 wherein said emulsifying agent is selected from at least one of the group consisting of alkaline soaps of fatty acids having C<sub>8</sub> - C<sub>20</sub>, sulphates of alkali metals and heavy alcohols having C<sub>8</sub> - C<sub>20</sub> and surface active sulfonated derivatives of alkali metals and alkaline earth metals.

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 3,862,906

DATED : January 28, 1975

INVENTOR(S) : Maurice CHAMBON et al

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

[30] Foreign Application Priority Data

January 13, 1971

France

PV 71.01708

Signed and Sealed this

seventh Day of October 1975

[SEAL]

Attest:

RUTH C. MASON  
Attesting Officer

C. MARSHALL DANN  
Commissioner of Patents and Trademarks

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