United States Patent

Bann

[15] **3,666,690**

[45] **May 30, 1972**

[54] SKIN CLEANSING COMPOSITION

[72] Inventor: **Robert Francis Bann,** Bridgewater Township, Somerset County, N.J.

[73] Assignee: **American Cyanamid Company,** Stamford, Conn.

[22] Filed: **Nov. 12, 1970**

[21] Appl. No.: **89,065**

[52] **U.S. Cl.**.....**252/547,** 252/105, 252/153, 252/312, 252/316, 252/DIG. 5, 252/DIG. 14, 424/170

[51] **Int. Cl.**.....**C11d 1/38**

[58] **Field of Search**.....252/105, 547, 153, DIG. 5, 252/DIG. 14; 424/170

[56] **References Cited**

UNITED STATES PATENTS

2,948,686	8/1960	Gianladis	252/153
3,178,371	4/1965	Friedenberg	252/153
3,207,694	9/1965	Gogek	252/105
3,400,079	9/1968	Clifford et al.	252/105 X

Primary Examiner—Richard D. Lovering

Attorney—John L. Sullivan

[57] **ABSTRACT**

A skin-cleansing composition for the removal of dye stains caused by basic triphenylmethane dyes, such as malachite green, comprising, in defined proportions, (1) a cationic surface-active quaternary ammonium salt containing a long-chain alkyl substituent, (2) mineral oil, (3) lanolin, (4) glycerine, (5) an alkali metal sulfite, (6) sodium carboxymethyl cellulose and (7) water.

4 Claims, No Drawings

SKIN CLEANSING COMPOSITION

This invention relates to a skin cleansing composition. More particularly, this invention relates to a hand cream for removing dye stains from the skin.

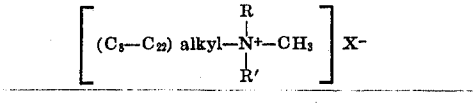
Dye stains are difficult to remove from the skin. Probably the most difficultly removable dye stains are those from basic triphenylmethane dyes such as malachite green and methyl violet. These are intensely colored materials of great tinctorial strength. The stains produced on the skin by these dyes are resistant to removal and cannot be washed off with ordinary soaps and detergents. Special hand cleaners available on the market are of little or no help. Many of these cleaners contain abrasives and are designed for the use of mechanics and others to remove grease and related stains. It has been a customary practice in many dye laboratories and manufacturing plants to remove the dye stains by application of strong bleaches, such as sodium hypochlorite and potassium permanganate. The latter requires the subsequent use of a reducing agent to remove the brown stain left by the permanganate. Strong bleaching compounds are detrimental to the skin. Therefore, a completely satisfactory cleaner has not been available for removing stains caused by basic triphenylmethane dyes from the skin without damage to the skin.

The object of this invention is to provide an effective skin cleansing agent for removal of dye stains caused by basic triphenylmethane dyes.

It is a further object of this invention to provide a cleaner which not only removes the dye stains, but does so without damage to the skin.

A stable composition has now been discovered which will remove from the skin stains caused by basic triphenylmethane dyes, particularly malachite green, fuchsine and methyl violet stains, and will not damage the skin. The components of the composition are a cationic surface active agent, a mineral oil, an alkali metal sulfite, lanolin, glycerine, water and a thickening agent. Optional components include a nonionic surface active agent and a buffering agent to maintain near neutral conditions.

The cationic surface active agents of use in this invention are quaternary ammonium salts containing a long-chain alkyl group of from 8 to 22 carbon atoms, preferably from 12 to 18 carbon atoms, such as, for example, cetyl dimethyl ethyl ammonium bromide or stearyl dimethyl benzyl ammonium chloride. The salt may also contain one or two polyethoxylated groups, i.e., $-(CH_2CH_20)_nH$ in which n is an integer of from about 5 to about 15, such as, for example, di(polyethoxylated) stearyl methyl ammonium chloride and di(polyethoxylated) "coco" methyl ammonium chloride ("coco" being a mixed long-chain (C_8-C_{18})-alkyl). The quaternary ammonium salts suitable for the composition of the invention will conform to the formula:



wherein R is methyl, ethyl or $-(CH_2CH_2O)_nH$ in which n is an integer of from 5 to 15; R' is lower (C_1-C_4)alkyl, benzyl or $-(CH_2CH_20bnH$; and X^- is chloride or bromide.

The mineral oil of use in this invention is of the light mineral oil type and includes kerosene. A preferred white mineral oil has an SVS viscosity of 70–74 at 100°F., a specific gravity at 60°F. of 0.8575 and a pour point of +10°F.

The alkali metal sulfites of use include sodium sulfite, sodium bisulfite, potassium sulfite, and potassium bisulfite. Sodium bisulfite is preferred for economic reasons.

The nonionic surface active agents enhance the detergency of the cleaning composition. Representative types of nonionic surface active agents which may be used include the polyethoxylated long-chain alkylphenols, such as the reaction products of nonylphenol with from 4 to 30 moles of ethylene oxide per mole of nonylphenol, and glycol monoesters of long-chain fatty acids of from 12 to 22 carbon atoms, such as propylene glycol monostearate. The preferred nonionic surface active agent is the condensation product of nonylphenol and about 9.5 moles of ethylene oxide.

The thickening agent provides a stabilized product that is a cream and is easily applied to the skin. Without the thickening agent, the product of this invention is a liquid emulsion. Suitable thickening agents include sodium carboxymethylcellulose.

The buffering agent neutralizes any residual acidity of the components of the cleanser. Obviously, the presence of strong acid in the cleansing composition is undesirable. Alkali metal salts of lower fatty acids, as represented by sodium acetate or potassium acetate, are suitable buffering agents.

The cleansing composition should contain between 3 and 12 percent, preferably between 6 and 10 percent, of the cationic surface active agent; between 5 and 20 percent, preferably between 7 and 10 percent, of the mineral oil; between 3 and 25 percent, preferably between 5 and 20 percent, of alkali metal sulfite; between 2 and 6 percent, preferably between 3 and 5 percent, of lanolin; between 5 and 18 percent, preferably between 10 and 15 percent, of glycerine; and between 30 and 50 percent, preferably between 35 and 45 percent, of water. The thickening agent should be used in an amount to provide the desired gel or cream. In the case of sodium carboxymethylcellulose, the amount is between 2 and 12 percent, normally between 5 and 8 percent. The amount of nonionic surface active agent is between 0 and 15 percent, preferably between 7 and 12 percent. The amount of buffering agent, if used, is sufficient to neutralize any strong acidity. For sodium acetate, the amount is between 0 and 2.5 percent, normally between 0.5 and 1 percent.

In a preferred embodiment of this invention, the composition contains about 8.3 percent of cetyl dimethyl ethyl ammonium bromide, about 8.6 percent of mineral oil, about 4.1 percent of lanolin, about 13 percent of glycerine, about 10.9 percent of the condensation product of nonylphenol and 9.5 moles of ethylene oxide, about 41 percent water, about 0.6 percent of sodium acetate, about 6.2 percent of sodium bisulfite and 6.8 percent of sodium carboxymethylcellulose.

The components of the cleansing composition can be combined in several different orders or sequences. In a particularly convenient procedure, the cationic surface active agent, mineral oil and lanolin, are melted together and to the mixture with good stirring are added the glycerine and nonionic surface active agent. The solution of the alkali metal sulfite and buffering compound in warm water is added followed by the thickening agent. The stirring is continued briefly and the mixture is then cooled.

The cleansing composition of this invention is a stable, soft cream which is easily applied to the skin. The cleansing cream is applied to the hands and the cream is worked into the skin until the stains are removed. When the stains have been removed, the excess cream can be wiped off or it can be flushed off with water.

EXAMPLE 1

A mixture of 400 parts of cetyl dimethyl ethyl ammonium bromide, 415 parts of mineral oil and 200 parts of lanolin is melted, and to the melt with good stirring there are added 630 parts of glycerine and 525 parts of the condensation product of 1 mole of nonylphenol with about 9.5 moles of ethylene oxide. With vigorous stirring, 2,000 parts of warm water, 30 parts of sodium acetate, 300 parts of sodium bisulfite and 325 parts of sodium carboxymethylcellulose are added. The mixture is stirred for about 30 minutes and is then cooled. The product removes stains of malachite green, fuchsine and methyl violet from the skin and leaves the skin soft.

EXAMPLE 2

A mixture of 50 parts of propylene glycol monostearate and 200 parts of cetyl dimethyl ethyl ammonium bromide is melted, and 210 parts of mineral oil, 100 parts of lanolin, 315

parts of glycerine, 1,000 parts of water, 500 parts of sodium bisulfite, 50 parts of sodium acetate and 95 parts of sodium carboxymethylcellulose are added in the stated order with good stirring.

The product removes stains of methyl violet, fuchsine and malachite green from the skin and leaves the skin soft.

EXAMPLE 3

A mixture of 100 parts of propylene glycol monostearate and 100 parts of di(polyethoxylated) stearyl methyl ammonium chloride (containing a total of 15 ethylene oxide units per molecule) and 415 parts of mineral oil is melted, and while the mixture is vigorously stirred, a solution of 500 parts of sodium bisulfite in 1,000 parts of water is slowly added. The thin solution is then thickened by addition of 200 parts of sodium carboxymethylcellulose. A solution of 90 parts of lanolin in 200 parts of glycerine is then added.

The product removes stains of malachite green, fuchsine and methyl violet from the skin and leaves the skin soft.

EXAMPLE 4

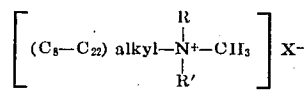
To a stirred mixture of 100 parts of di(polyethoxylated) stearyl methyl ammonium chloride (containing a total of 15 ethylene oxide units per molecule) and 415 parts of mineral oil, there is added a solution of 500 parts of sodium bisulfite in 1,000 parts of water. The resulting solution is heated to 90°C. and stirred with cooling. Sodium carboxymethylcellulose (200 parts) is added, followed by a solution of 90 parts of lanolin in 250 parts of glycerine.

The product removes stains of malachite green, fuchsine and methyl violet from the skin and leaves the skin soft.

I claim:

1. A hand cleansing composition consisting essentially of:

1. from about 3 to about 12 percent of a cationic quaternary ammonium salt of the formula:



wherein R is methyl, ethyl or $-(CH_2CH_2O)_nH$ in which n is an integer of from 5 to 15; R' is lower alkyl, benzyl or $-(CH_2CH_2O)_nH$; and X^- is chloride or bromide;

2. from about 5 to about 20 percent of mineral oil;

3. from about 2 to about 6 percent of lanolin;

4. from about 5 to about 18 percent of glycerine;

5. from about 3 to about 25 percent of an alkali metal sulfite;

6. from about 2 to about 12 percent of sodium carboxymethylcellulose; and

7. from about 30 to about 50 percent of water.

2. A composition according to Claim **1** containing up to about 15 percent of a non-ionic surface active agent selected from (a) a condensation product of 1 mole proportion of nonylphenol with from 4 to 30 mole proportions of ethylene oxide and (b) a glycol monoester of a long-chain fatty acid.

3. A composition according to Claim **2** containing up to about 2.5 percent of an alkali metal acetate as buffering agent.

4. A composition according to claim **1** containing:

1. from 6 to 10 percent of cetyl dimethyl ethyl ammonium bromide;
2. from 7 to 10 percent of mineral oil;
3. from 3 to 5 percent lanolin;
4. from 10–15 percent glycerine;
5. from 10 to 15 percent sodium bisulfite;
6. from 5 to 8 percent sodium carboxymethylcellulose;
7. from 35-45 percent of water;
8. from 7-12 percent of the condensation product of 1 mole proportion of nonylphenol and 9.5 mole proportions of ethylene oxide; and
9. from 0.5 to 1 percent of sodium acetate.

* * * * *