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CLEANING COMPOSITION

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2 Claims. (Cl. 87—5)

This invention relates to new compositions of matter for use as detergents and insecticides, or both, and more particularly to the compositions themselves and the method of using the same.

Heretofore there have been used for cleaning fabrics. including rugs and the like, and for general household cleaning and washing purposes, various compositions containing ordinary soap. These were not very effective as cleaning agents and a relatively large amount of labor was necessary in order to obtain even moderate results. Moreover, hard water, such as is often ordinarily used in the cleaning operation, introduces additional difficulties due to the precipitation of calcium soaps.

There have also been proposed certain compounds known as wetting agents which are sulphonated products of various types. Although these products contain soluble salts and the presence of such salts is sometimes considered beneficial, very often they are decidedly deleterious.

Soap and some of the spreading agents, such as calcium caseinate, have been used in connection with insecticides as spreaders; for example, soap is used with nicotine sulphate. Soap in this case acts as a spreader to distribute the solution of nicotine on the leaves of the plant. In making up solutions for spraying it is necessary to use two ingredients, that is, soap and the nicotine, measuring each one separately and also measuring the water.

The present invention is intended to provide a composition with the desirable property of quickly and effectively cleaning fabrics and the like, and for other cleaning operations, without the disadvantages inherent in the prior art. In addition, this invention is also applicable to provide a composition which has the desired properties for effectively making up and applying insecticides, insect repellents and the like. In these cases the problem for which this invention is the solution is to quickly and effectively disperse measured amounts of active ingredients thoroughly over a large area.

In accomplishing the result of the present invention I provide a gel of a sulphonated organic compound, which gel contains water and is substantially free from soluble salts. The gel consists essentially of the sulphonated compound, usually in the form of an alkali metal salt thereof, and water in such amounts that the composition is in gel form. It may be obtained by taking a solid mixture of about equal parts by weight of sodium oleylaminoethyl sulphonate and sodium sulphate, for example, and dissolving the same in anhydrous ethyl alcohol whereby the sulphonate is separated from the insoluble salt. The solution is evaporated to dryness and the residue is dissolved in about four parts of hot water containing about 4% of sodium chloride. Upon cooling the entire solution solidifies to a gel. This gel, as compared to the original material, is therefore substantially free from soluble salts. The gel is applied to the article to be cleaned, either directly by spraying or rubbing the same into the surface of the article, or by first dissolving the gel in a sufficient amount of water and applying the solution to the article with a brush or as a spray. Such application of the composition adequately cleans the article and the composition may, if desired, be washed from the article by means of a spray or stream of water.

The gel may also be made up with insecticidal or insect repellent materials and the like incorporated in it. In this case the gel is dissolved in sufficient water and the resulting solution is then applied as a spray or by other known means. Disinfecting materials may also be incorporated in gel with water or other materials.

I have found that, in general, the class of compounds known as sulphonic acids, and preferably the alkali metal salts thereof, are suitable for my purpose. I have found that sulphonic acids of various types, including those made from the fatty oils, higher alcohols, fatty acids, the higher aliphatic hydrocarbons such as those derived from petroleum, the carbocyclic hydrocarbons, acid amides such as the amides of fatty acids and substitution products thereof are highly effective when used in the gel form for the purposes given above.

The following are specific examples of some of the compounds included in the present invention:

Isopropyl naphthalene sulphonic acid sodium salt
Butyl naphthalene sulphonic acid sodium salt
Butyl benzene sulphonic acid sodium salt
Sodium salts of high molecular weight alkyl sulphuric acids, i. e., sulphuric acid esters of higher hydrocarbons or alcohols
Cylohexanol sulphonic acid sodium salt
Oleylaminoethyl sulphonic acid sodium salt
Sodium salts of sulphuric acid ester of alcohols, such as oleyl, lauric, etc.

It is desirable, and in some cases essential, that the gel be substantially free from salts as I have found that the composition is often more effective in the absence of salts than in the presence thereof, contrary to the prior opinion. The absence

of salts has a number of advantages in that there is no possibility of leaving the crystalline materials in the articles being cleaned with resultant detrimental action, either mechanical or chemical.

When the compositions are used as a shampoo or in place of soap for cleaning uses, the absence of salts in the composition renders the same non-irritant. This is especially important where a person has a delicate or sensitive skin.

In cleaning of articles, such as rugs, for example, the previously used materials had a tendency to cause matting of the fibres. The composition of the present invention has no such effect and it leaves the article in at least as good physical condition after cleaning as before. In prior practice, it was necessary to rub and scrub the article excessively, as is the case when soap is used, causing considerable wear, and very frequently injuring the article. In addition, it required the services of an operator over a relatively long time with considerable effort on his part, and still the result was not satisfactory. By the present invention little or no rubbing or scrubbing is necessary. There is little wear or tear of the article and the time of cleansing and rinsing, when desired, is materially shortened.

The gel form of the material renders the same readily and quick soluble in water so that it may be made into a solution for use without any special apparatus and it may be rinsed from the article very readily after it has served its purpose as no curds are formed as is the case when soap is used.

When used as a shampoo, the gel may be directly applied to the scalp and because of the ready solubility thereof in water, it is merely necessary to wash the gel from the scalp by a gentle flow of water and the cleansing operation is effective and complete.

When used as an insecticide or insect repellent, the gel carries with it insecticidal or insect repellent ingredients. Such a gel can be readily measured. For example, the gel may be packed in collapsible tubes and by measuring the amount extruded from the tube, the amount of active insecticidal ingredient is automatically measured. This is a great advantage as applying insecticidal materials in too high a concentration often results in injury to the host. On the other hand, too low a concentration results in decreased effectiveness. In the prior practice it was customary to measure out each ingredient going into the spray separately. In the case of the present invention it is necessary to measure out only the one product in addition to the water or other carrier used for dilution.

Similarly, disinfectants and antiseptics combined in such a gel form offer advantages over disinfectants and antiseptics in the form now used.

The gel form has many other advantages as, for instance, it may be packed in cartons which are not absolutely water-tight without danger of loss from spillage; it may be readily packed in various types of containers, such as cans, jars, water-proofed paper containers, collapsible tubes, and the like.

The amount of composition to be used may be easily and readily measured and a considerable saving may thus be effected in that no excess need be used.

Although I have described my invention, setting forth a few specific compounds which may be used and also setting forth but a few uses thereof, it is to be understood that my invention is not at all limited to the details above set forth. There are many other uses for such a composition for cleaning purposes and it is adaptable for all uses for which soaps and other detergent materials have been employed. Various changes in the composition and in the form thereof may be made as, for example, coloring matters may be added thereto; perfumes may be incorporated; and medicinal, disinfectant, antiseptic and fungicidal agents, such as pine tar, creosote and the like may be added thereto. I may incorporate mothproofing agents, such as salts of fluosilicic acid or of organic bases or both, in the gel.

My invention is not to be limited, except by the appended claims.

What I claim is:

1. A method of cleaning which consists essentially in providing a gel containing substantial amounts of water of an oleylaminoethyl sulphonic acid compound, substantially free from water-soluble salts, applying the same to the part to be cleaned and washing to remove the same.

2. A cleaning composition consisting essentially of a gel containing substantial amounts of water of an oleylaminoethyl sulphonic acid, said gel being substantially free from water-soluble salts.

ERNEST D. WILSON.

CERTIFICATE OF CORRECTION.

Patent No. 2,125,411. August 2, 1938.

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It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, second column, line 46, for "Cylohexanol" read Cyclohexanol; page 2, first column, line 29, for the word "quick" read quickly; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 20th day of September, A. D. 1938.

Henry Van Arsdale

(Seal) Acting Commissioner of Patents.