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NONCORROSIVE PERSPIRATION INHIBIT-
ING COMPOSITIONW Kedzie Teller, Riverside, Ill., assignor to The
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DelawareNo Drawing. Application March 27, 1939,
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8 Claims. (Cl. 167-30)

This invention relates to a noncorrosive perspiration inhibiting material and more particularly to a composition to prevent astringent perspiration inhibiting compositions from damaging garment fabrics, or the like.

Many preparations are known in the art for treating skin areas to eliminate the unpleasant effects of perspiration. Most of these preparations contain an astringent salt of a mono basic acid, such as aluminum chloride, zinc chloride, thorium nitrate, aluminum nitrate, or the like. One difficulty in the use of such preparations is due to the fact that the material brushes off on the clothing of the wearer and damages the fabric. If the clothing is not washed free of the perspiration inhibitor, the application of a hot iron, as in pressing the goods, will destroy the fabric, apparently through the liberation of a free acid which almost immediately destroys rayon and some other fabrics commonly used in wearing apparel. Even where the goods are not ironed, the astringent salt will rot the clothing.

This difficulty is overcome by the present invention through the use of a salt of an alkali metal or alkaline earth metal and an organic acid. In order to be completely effective such materials should, of course, be highly water soluble, and the lower the corrosion inhibiting properties thereof, the greater must be the solubility. These salts have the peculiar property of being able to neutralize the potential corrosiveness of astringent materials like aluminum chloride without affecting the acidity of the solution. In this they distinguish from ordinary inorganic salts of strongly alkaline metals which destroy completely the astringent effect of the perspiration inhibiting material.

An ordinary 15% solution of aluminum chloride has a pH of about 2.7 and it is desirable that the compound used shall not increase this pH above 4.

The corrosion inhibitor may be used with a perspiration inhibitor which is prepared either in liquid form, as a cream, or in solid form.

Suitable salts are the salts of formic, acetic, citric, tartaric, lactic, and malic acid. Ordinarily calcium, sodium, magnesium, or ammonium salts of these acids will be employed. The invention is not limited to the completely neutralized salts. For example, ammonium bi-lactate, ammonium bi-malate, sodium bi-tartrate and diammonium citrate are effective but require larger quantities of material. With these salts, about 10 to 15 times as much salt is required as aluminum chloride. Triethanolamine formate, or acetate may be employed.

As an example of the invention, a cream perspiration-inhibitor can be formed as follows: a base comprising from 10 to 30 parts of "tegacid" or "aquarol" and from 0 to 20 parts of petroleum is melted by heating it to about 90° C. From 40 to 70 parts of boiling water is stirred into the composition and then it is permitted to cool. Into this base may be stirred dry aluminum chloride crystals ($\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$) using about 15 parts of the base to from 1 to 10 parts of aluminum chloride. The crystals immediately soften the base and permit the composition to be stirred easily, and later the material will set into the consistency of a cream which is an effective perspiration-inhibitor. To the composition thus formed a salt, such as sodium formate is added. About equal parts of sodium formate are added compared to the aluminum chloride. Smaller amounts, however, will give some protection. "Tegacid" is the trade name for a mixture of glycerol monostearate and a wetting agent presumably of the sulfated fatty alcohol compound type. "Aquarol" is a similar compound.

A formula for an alcohol base vehicle is as follows:

	Parts
Candelilla wax-----	3 to 6
Castor oil-----	3 to 6
Isopropyl alcohol-----	40 to 60
"Dioxan"-----	20 to 40

To this base may be added 3 parts of the astringent salt with 3 parts of the salt and from 60 to 90 parts of the base. "Dioxan" is 1,4 diethylene oxide.

It has been found that the astringent salt such as aluminum chloride will not react with the alkaline salt before the combination is subjected to high temperature. Apparently the inhibitor will react with liberated free acid without being active with aluminum chloride or the other astringent salts.

In the example given the corrosion inhibitor is incorporated in the perspiration inhibiting composition, but ordinary perspiration inhibitors can be applied topically in the usual manner and then an application made of the corrosion inhibiting material. This is particularly effective in the case of corrosion inhibitors of relatively low solubility.

The amount of the corrosion inhibitor employed will vary with the astringency of the perspiration inhibiting compound. Aluminum chloride is one of the most astringent. For one part of aluminum chloride, one part of sodium

formate or calcium acetate or sodium acetate may be used. For the same amount of aluminum chloride, two parts of Rochelle salts, of sodium citrate, of sodium tartrate, of magnesium acetate, or calcium lactate, should be employed. Ammonium salts, such as ammonium formate, acetate, malate, tartrate, lactate, and oxalate, are generally used in somewhat larger amounts than the corresponding sodium salts.

10 The usual astringent salts employed are the chlorides, nitrates, or sulfates of aluminum, zinc, or thorium. Other astringent salts are equivalent in action, however. The sulfate requires very much less inhibiting material than does the chloride.

15 This application is a continuation in part of my copending application Ser. No. 219,880, filed July 18, 1938.

20 The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom.

I claim:

25 1. A cosmetic astringent preparation containing an astringent material comprising an acid-reacting inorganic salt of a polyvalent metal and a proportion of a soluble alkaline salt of an aliphatic organic acid having not more than six carbon atoms.

2. A cosmetic astringent preparation including a salt of aluminum and a strong inorganic acid, and a proportion of an alkaline salt of an aliphatic organic acid having not more than six carbon atoms.

3. A cosmetic astringent preparation including aluminum chloride and an inhibiting proportion of an alkaline salt of an aliphatic organic acid having not more than six carbon atoms.

4. A cosmetic astringent preparation including aluminum chloride and at least an equal proportion of a soluble alkaline salt of an aliphatic organic acid having not more than six carbon atoms.

5. A cosmetic astringent preparation including an acid reacting aluminum salt and at least an equal proportion of a soluble salt of an aliphatic organic acid having not more than six carbon atoms and a metal of the group consisting of the alkali and alkaline earth metals.

6. The cosmetic preparation as set forth in claim 1, in which the acid is acetic.

7. The cosmetic preparation as set forth in claim 1, in which the acid is formic.

8. The cosmetic preparation as set forth in claim 1, in which the acid is lactic.

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