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COMPOSITION FOR CLEANING SYNTHETIC FUR

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This invention relates to composition for cleaning synthetic fur, in particular, garments such as coats and jackets made from synthetic furs.

A number of synthetic furs are today being sold, for instance, synthetic furs made of Dynel or nylon or vinyl cyanide or other synthetic fibers. These synthetic furs are made into very attractive garments, such as coats and jackets. However, these garments suffer from a serious disadvantage, namely, the fact that they attract and tenaciously hold particles of dust and dirt. Consequently, synthetic fur garments require frequent dry cleaning. Further, it is difficult to dry clean synthetic furs satisfactorily, since the synthetic fibers hold the dust and dirt particles so very tenaciously.

According to the present invention, synthetic fur garments can be thoroughly dry cleaned and, if desired, also glazed, by incorporating with the dry cleaning solvent a composition (of a nature disclosed hereinbelow) which will eliminate the tendency of the synthetic fur fibers to attract and hold particles of dust and dirt. Thus, the necessity for frequent dry cleaning is abolished and dry cleaning, when required, is carried out much more easily.

The composition above referred to comprises from about 2.5 to 15 percent (preferably about 7.5 percent) of a quaternary amine, from 2 to 10 percent (preferably about 5 percent) of a tertiary amine, from 5 to 20 percent (preferably about 10 percent) of a polyethylene glycol ether of an alkylated phenol and, if a glazing effect is also desired, from 2 to 5 percent (preferably about 2.5 percent) of a silicone oil, the remainder being a dry cleaning solvent such as mineral spirits. If desired, a greater percentage of dry cleaning solvent can be used than indicated above, but then the composition is not diluted (when used) as much as indicated hereinbelow.

The above mentioned quaternary ammonium compound is a salt, ordinarily the chloride, of a dialkyl dimethyl ammonium compound wherein the alkyl groups each contain from 8 to 18 carbon atoms. Examples of such quaternary ammonium compounds are those in which the alkyl chains have been derived from fatty acids (by reduction of the carboxyl group), such as soya fatty acid, tallow, hydrogenated tallow, coconut fatty acid and stearic acid.

The above mentioned tertiary amine has the following structural formula:

$$\begin{array}{l}(CH_2-CH_2-O)_x-H\\ \quad\vert\\ \quad N-R\\ \quad\vert\\ (CH_2-CH_2-O)_y-H\end{array}$$

wherein R signifies an alkyl group containing from 8 to 18 carbon atoms and wherein x and y signify numbers totalling from 2 to 10. The alkyl group may be derived from a fatty acid (by reduction of the carboxyl group), such as soya fatty acid, coconut fatty acid, or stearic acid.

The above mentioned polyethylene glycol ether of an alkylated phenol is a condensation product of from 2 to 10 molecules of ethylene oxide with one molecule of an alkyl phenol wherein the alkyl group contains from 8 to 10 carbon atoms, for instance, octyl, nonyl or decyl phenol.

The above mentioned silicone oil is a polydimethyl or polydiethyl siloxane.

The above mentioned four materials (quaternary ammonium compound, tertiary amine, polyethylene glycol ether of an alkylated phenol and silicone oil) are all available in commerce.

When used for cleaning synthetic fur garments, the above disclosed composition is diluted with a dry cleaning solvent, for instance, carbon tetrachloride, at a ratio, say, of 4 to 7 parts (by volume) of solvent for each part of my composition. The garment is first scrubbed with this solution and thereafter tumbled with sawdust and an additional amount of diluted composition using, for instance, about two liquid ounces of my composition (before dilution). Garments thus treated are thoroughly cleaned. The sawdust can be removed by simply shaking the garments. When a silicone oil is included with my composition, the synthetic fur is also glazed.

A specific composition according to the present invention (given by way of an example) contains 10 percent (by weight) of a 75 percent solution (in isopropyl alcohol) of a dialkyl dimethyl ammonium chloride wherein the alkyl groups are derived from soya fatty acid; 5 percent of a tertiary amine having the above indicated structural formula in which the alkyl group is derived from soya fatty acid and in which x and y total between 8 and 10; 5 percent of nonyl phenol condensed with about 10 molecules of ethylene oxide; 2.5 percent of polydimethyl siloxane; and 77.5 percent of mineral spirits.

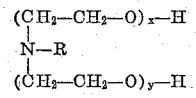
As disclosed hereinabove, dust and dirt particles do not adhere tenaciously to synthetic furs which have been immersed in a dry cleaning solvent having the above disclosed composition dispersed or dissolved therein. This effect is brought about jointly by the specific quaternary ammonium compound and the specific tertiary amine included with my composition. Either one of these materials (the quaternary ammonium compound and the tertiary amine), when used singly, will under some conditions inhibit the tendency of dust and dirt particles to adhere to synthetic fur. But to bring about this result under all conditions of use and at all times, both the quaternary ammonium compound and the tertiary amine must be used in combination. The tertiary amine also performs another important function. If a composition is made up containing all the above mentioned materials except only the tertiary amine, then water or moisture contacting such an incomplete composition will be quite corrosive to metals, in particular, iron, with the result that the use of such an incomplete composition in iron or other metal equipment will be impractical, since moisture can never be completely excluded. The complete composition of my invention, on the other hand, can be used in iron or other metal equipment without causing corrosion. The polyethylene glycol ether of alkylated phenol forming part of my composition functions to keep the other ingredients, in particular, the silicone oil, in stable dispersion or solution, and also to cause the synthetic fur to be completely wetted and penetrated by the dry cleaning solvent having my composition dispersed or dissolved therein. The silicone oil, when used, serves to make the synthetic fur glossy and shiny.

Many details may be varied without departing from this

invention and it is therefore not my intention to limit the patent granted on this invention otherwise then necessitated by the scope of the appended claims.

The invention is claimed as follows:

1. For dry cleaning and dissipating static electrical charges on synthetic fur garments, a composition adapted to be diluted by a compatible solvent for use and comprising: an organic solvent having dispersed therein from 2.5 to 15 parts by weight of a dialkyl dimethyl ammonium salt wherein the alkyl groups each contain from 8 to 18 carbon atoms; from 2 to 10 parts by weight of a tertiary amine having the structural formula:



wherein R signifies an alkyl group containing from 8 to 18 carbon atoms and wherein x and y are numbers totalling from 2 to 10; and from 2 to 20 parts by weight of a polyethylene glycol ether of alkyl phenol being a condensation product of one molecule of an alkyl phenol, wherein the alkyl group contains from 8 to 10 carbon atoms, with from 2 to 10 molecules of ethylene oxide.

2. A composition according to claim 1 additionally comprising from 2 to 5 parts by weight of a silicone oil selected from the group consisting of the polydimethyl and polydiethyl siloxanes.

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