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METHOD FOR THE IMPROVING OF GOODS

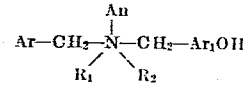
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10 Claims. (Cl. 21—5)

It has been found that for the protection of goods from attacks of vermin those quaternary ammonium compounds are particularly suitable which contain on the nitrogen atom no less than two aryl-methyl groups, at least one of which is to bear one or several hydroxyl groups which may be eventually alkoxylated or esterified.

The compounds suggested for the treatment of goods for improving purposes are of the general formula



In this formula Ar and Ar_1 mean aromatic residues such as phenyl, diphenyl, naphthyl, tetrahydronaphthyl, octahydro-anthracyl and the like. R_1 and R_2 mean any organic residues e. g. aliphatic residues such as methyl-, ethyl-, hydroxyethyl-, dimethyl-amino-ethyl-, propyl-, isopropyl-, benzyl-groups and the like; R_1 and R_2 may also be cyclically bound with each other e. g. piperidyl, morphyl. An means any anion e. g. Cl, Fl, Br, I. Finally the hydrogen atoms may also be substituted by alkyl residues.

The aromatic residues Ar and Ar_1 may also be substituted e. g. by further hydroxyl groups, nitro groups, amino groups, methyl-, ethyl-, propyl-, isopropyl-groups and the like. Of a particular value are the compounds, wherein the aromatic residues contain halogen groups such as fluoro-, chloro- or bromo-groups. The compounds in which the aromatic residues are substituted by higher alkyl- or cyclo-alkyl-groups are most suitable.

Such compounds are e. g. dimethyl-benzyl-(2-hydroxy-5-chloro-benzyl)-ammonium chloride, 5,5'-dihydroxy-2,2'-dichloro-dibenzyl-piperidinium chloride, 5-chloro-2-hydroxybenzyl-α-me-naphthyl-diethyl-ammonium chloride, 4,6,3',4',-tetrachloro - 1 - hydroxydibenzyl-diethyl-ammonium chloride, 5 -bromo- 2 -methyl-4'-chloro-1-hydroxy-dibenzyl-piperidinium chloride. They are obtained by converting amines containing at least one arylmethyl group into quaternary ammonium compounds in a way usual in itself, whereat the initial materials are to be selected in such a manner, that there exists in the quaternary ammonium compound at least 2 arylmethyl groups, at least one of which is substituted by one phenolic hydroxyl group or by its functional derivatives such as ester- or ether groups. But I may likewise proceed by starting with the amines which already possess two arylmethyl groups of the characterized sort and then converting these into the quaternary compounds e. g. by converting them with alkylating or aralkylating agents. Finally it is also practicable to react primary and secondary amines containing no arylmethyl groups with compounds which while forming the quaternary ammonium compounds give off the arylmethyl groups of the characterized type.

The compounds suggested for the refining of goods can be applied either alone or mixed with one another and eventually with an addition of other preserving agents. I may proceed e. g. in such a manner that I soak or moisten or sprinkle the goods to be preserved with solutions of said compounds in organic liquids. With products inclining to crystallizing I am in a position to prevent the efflorescing of the ammonium compounds in choosing an appropriate solvent or mixture of solvents or also additional materials such as higher alcohols, cyclic acetones or acetals and the like.

Moreover these compounds may be used in emulsions or dispersions or—where they are easily soluble in water—in aqueous solutions to be applied in the treatment of the goods in a way similar to a dyeing process.

It may sometimes be advisable to co-employ some special wetting- and emulsifying-agents to secure a uniform penetration of the goods.

I may bring the goods into intimate contact with the new preserving agents also by powdering them. In the powdering process I may make use of dredging boxes, rolling casks and the like. When it is not advisable to use my novel preservation per se in the form of a powder, I can make firm powdery preparations out of same and powdered adsorption materials such as infusorial earth, talcum, wood-flour, bleaching earth, starch, etc.

My new preserving agents may be applied in the presence of other compounds such as acids, salts, mordants, dyestuffs and the like, whereby their efficiency or their sticking-power will be enhanced or other properties improved.

The treatment can be performed at room temperature as well as at higher temperatures.

Due to the simplicity of the present method the treatment is possible not only in the manufacture and working-up of goods but also in the household and in cleansing-establishments such as chemical laundries, further in washing with benzine or with other organic solvents and particularly with non-inflammable ones.

I may also apply, besides the aforesaid hydrohalic acids, other acids such as hydrofluosilicic

acid, perchloric acid, hydrocyanic acid, acylphosphoric acid, sulfuric acid or also organic acids e. g. carbonic acids, sulfonic acids, etc., to form salts with my quaternary bases.

The claimed products may serve for the refining of wool, textile materials, natural or artificial fibres, furriery, hair, feathers, leather, paper or, respectively, products or masses containing such materials. Their preserving power is so high that small amounts are sufficient to produce very remarkable effects.

Example 1

Furs to be preserved against vermin and particularly against moths are powdered with a mixture consisting of 93 weight parts of talcum and 7 weight parts of 5-bromo-2-methyl-4-chloro-1-hydroxy-dibenzyl-piperidinium chloride.

Example 2

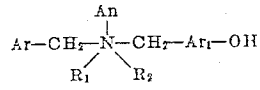
Wool becomes unassailable by vermin when treated with three times the amount of a 0.2%-aqueous-alcoholic solution of 4,6,3',4'-tetrachloro-1-hydroxy-dibenzyl-diethyl-ammonium-chloride.

Example 3

Textiles are thoroughly moistened, as indicated in Example 2, with a 0.5%-aqueous solution of dimethyl-benzyl-(2-hydroxy-5-chlorobenzyl)-ammonium-chloride and subsequently treated in a diluted aqueous solution of potassium chlorate, whereby the difficultly soluble perchlorate of the quaternary base is precipitated upon the goods to be preserved against vermin.

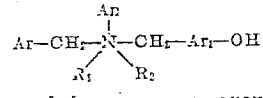
I claim:

1. Process for the protection of goods from vermin characterized by treating the goods with quaternary ammonium compounds of the general formula



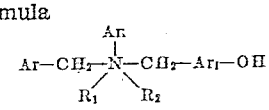
in which Ar and Ar_1 mean an aromatic residue, An means an anion and R_1 and R_2 stand for any organic residue.

2. Process for the protection of goods from vermin characterized by treating the goods with quaternary ammonium compounds of the general formula



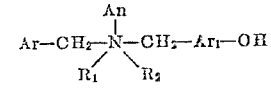
in which Ar and Ar_1 mean an aromatic residue, An means an anion and R_1 and R_2 stand for organic residue, which jointly form a ring with the N-atom.

3. Process for the protection of goods from vermin characterized by treating the goods with soluble quaternary ammonium compounds of the general formula



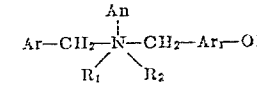
in which Ar and Ar_1 mean an aromatic residue, An means an anion and R_1 and R_2 stand for any organic residue and reacting the soluble quaternary ammonium compounds on the goods with salts producing difficultly soluble salts with the quaternary ammonium compounds by double decomposition.

4. A vermin-proofing agent for goods comprising a quaternary ammonium compound of the general formula



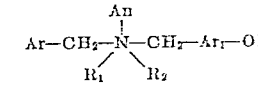
in which Ar and Ar_1 mean an aromatic residue, An means an anion and R_1 and R_2 stand for any organic residue.

5. A vermin-proofing agent for goods comprising a quaternary ammonium compound of the general formula



in which Ar and Ar_1 mean any substituted aromatic residue, An means an anion of the group consisting of Cl, Fl, Br and I and R_1 and R_2 stand for organic residue jointly forming a ring with the N-atom.

6. A vermin-proofing agent for goods comprising a quaternary ammonium compound of the general formula.



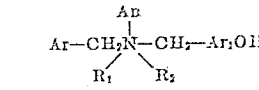
in which Ar and Ar_1 mean a substituted aromatic residue of the group consisting of hydroxyl-, halogen-, nitro-, amino-, alkyl- and cycloalkyl substituted aromatic residues, An means an anion and R_1 and R_2 stand for any substituted aliphatic residue, the hydrogen atoms of the CH_2— groups being substituted by alkyl residues.

7. A vermin-proofing agent for goods containing 5-bromo-2-methyl-4-chloro-1-hydroxy-dibenzyl-piperidiniumchloride.

8. A vermin-proofing agent for goods containing 4, 6, 3', 4'-tetrachloro-1-hydroxy-dibenzyl-diethyl-ammonium chloride.

9. A vermin-proofing agent for goods containing dimethyl-benzyl-(2-hydroxy-5-chlorobenzyl)-ammoniumchloride.

10. Vermin-proofed goods of the nature of furs, feathers, textiles and other fibrous materials and the like, having their vermin-proof characteristics imparted by incorporating in said goods a compound of the formula:



in which Ar and Ar_1 mean aromatic groups, An means a halogen and R_1 and R_2 stand for an organic radical.

WINFRID HENTRICH.