Patented Mar. 4, 1952

2,587,957

UNITED STATES PATENT OFFICE

2,587,957

INSECT REPELLENTS CONTAINING A CHLOROBUTYROAMIDE

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No Drawing. Application August 10, 1945, Serial No. 610,189

1 Claim. (Cl. 167—22)

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This invention relates to improved insect repellents and to improved wrapping and other sheet material having insect repellent properties.

The present invention is based upon the discovery that the halogenated lower amides, that is, the acylamides having from 2 to 5 carbon atoms in the acyl group and having at least one of the hydrogens of the acyl group replaced by chlorine or other halogen have valuable insect repelling properties. In general, the compounds having these properties may be represented by the formula $RCONR_1R_2$ in which R is an alkyl group having at least one chlorine or other halogen substituent and in which R_1 and R_2 are hydrogen or lower alkyl groups, such as methyl, ethyl or propyl. These compounds are white, crystalline materials, and may be incorporated in substantial proportions in the sheet material to be made insect repellent, for example in kraft paper up to 14% or more may be incorporated without materially interferring with the properties of the paper.

In accordance with the invention, there is incorporated in paper, fabrics, or other sheet material one of these halogenated amides, or in the case of insect repellents intended for application in liquid form, the halogenated amide is dissolved in a solvent of low vapor pressure, such as dimethyl phthalate or the like. The invention includes solutions of the halogenated amides in such a liquid of low vapor pressure, as well as paper, textiles and other sheet material impregnated with one or more of them.

For the production of an insect repellent paper, for example, the halogenated amide may be incorporated therein in various ways. As the products have relatively low solubility in water they may be added as such to the paper pulp and carried into the paper therefrom. Alternatively, the paper may be treated with an aqueous suspension of one of the halogenated amides, or with a solution of one of them in an organic solvent such as acetone. With textiles it is convenient to impregnate the textile with either a suspension of the halogenated amide or a solution thereof. A 10% solution in acetone gives good results. For application in liquid form, the halogenated amide is dissolved in a solvent of low vapor pressure, which does not evaporate rapidly, depositing the crystallized halogenated amide. Solvents having volatility characteristics similar to those of the alkyl phthalates, e. g., dimethylphthalate are used for this purpose with advantage, but other solvents may be used.

Among the halogenated amides which may be

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used with advantage in the practice of the present invention are the following:

Trifluoroacetamide.
Diethyltrichloroacetamide.
Fluorodichloroacetamide.
Ethyltrichloroacetamide.
Butyltrichloroacetamide.
2,2-dichloropropioamide.
2,2-dichlorobutyroamide.
2,2,3-trichloropropioamide.
2,2,3-trichlorobutyroamide.
2,2,4-trichlorobutyroamide.
3-chloropropionamide.
2-chloroisobutyroamide.
2-chloropropioamide.
3-chlorobutyroamide.
2,3-dichloroisobutyroamide.
Dichloroacetamide.
Monochloracetamide.
Trichloracetamide.
4-chlorbutyroamide.
2,2,3,4-tetrachlorobutyroamide.
2-chlorbutyroamide.

We claim:

Insect repelling sheet material comprising a sheet material impregnated with a chlorobutyroamide.

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