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CHLORAMIDE SKIN PROTECTING
OINTMENTMarion B. Sulzberger, Abram Kanof, and
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1 Claim. (Cl. 167-63)

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sec. 266)

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This invention relates to a skin-protecting ointment adapted to protect against skin irritants.

In numerous instances such as, for example, in various industrial and other occupations, a person's skin is exposed to dermatitis-producing irritants. For example, there are many industrial hazards in the manufacture of dyes and dye intermediates, lacquers, anti-oxidants and the like; some of these industrial hazards relate to purely synthetic compounds as dye intermediates and the like, whereas others relate to materials derived from natural sources such as cashew nut oil, lemon grass oil, or the like. In addition there are frequent instances in which a person's occupation brings him into close contact with naturally occurring skin irritants in their native state such as various outdoor occupations that lead to frequent exposure to poison ivy or the like. Inasmuch as various types of skin irritants are encountered in various indoor and outdoor occupations, the term "industrial dermatitis irritant" is used hereinafter and in the claims to denote naturally occurring skin irritants in their native state as well as skin irritants normally encountered in various manufacturing and producing industries.

In all of these instances it is highly desirable to have an ointment that can be applied directly to the skin and that protects the user against any or all of these skin irritants, but that does not, in itself, prove harmful to the skin. Accordingly it is an object of this invention to provide a protecting agent effective against industrial dermatitis irritants.

It is an additional object to provide an industrial skin-protecting ointment comprising a film forming base having therein an operative proportion of an active ingredient containing a chlorinating agent.

Still further objects of this invention as well as its composition and use are obvious and appear from the following disclosure.

According to this invention there is provided a skin-protecting ointment comprising a film-forming base optionally containing a thickening agent or the like, and having therein an active ingredient comprising a chloramide compound having available chlorine for oxidizing or chlorinating purposes. The ointment is effective against industrial skin irritants that are readily oxidizable or that readily combine with chlorinating compounds. Inasmuch as great numbers of skin-irritating materials fall within this classification, the ointment according to this in-

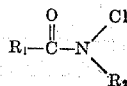
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vention has a very wide, almost universal application.

The film-forming base according to this invention comprises an oil or an oily substance such as, for example, a bland, relatively stable mineral oil, vegetable oil, or the like, that is adapted to form a thin protective coating. According to a preferred form of the invention, a highly satisfactory oily compound for this purpose is triacetin, or glycerol triacetate.

To this base compound there is optionally added a thickening agent or the like, such as, for example, magnesium stearate. The purpose of the magnesium stearate is to thicken the film-forming base to a desired, predetermined consistency, such as a cream-like paste; accordingly it is obvious that there can be used for this purpose any of a number of relatively stable, bland, powdery materials including, for example, cellulose derivatives and the like.

Added to the thickened mixture, in a correct proportion is an active ingredient comprising a chlorinating compound that is relatively non-irritating to the skin and that has an available supply of chlorine for oxidizing or chlorinating purposes. Compounds satisfactory for this purpose according to the present invention have the general structural formula:



where R₁ and R₂ are selected from the class comprising hydrogen, alkyl, aryl, aralkyl, and halogen-substituted derivatives thereof. Suitable compounds include: 2,4-dichlorophenylbenzoyl-chloramide, N,N'-dichlor-N,N'-di(2,4,6-trichlorophenyl)urea, 1,3,4,6-tetrachlor-7,8-diphenylglycoluril, 1,3,4,6-tetrachlor-2,5-dimino-7,8-diphenyl-glycoluril, 1,3,4,6-tetrachlor-7,8-dimethylglycoluril, and other substituted chloramides.

The concentration of the active ingredient in the composition according to this invention is determined on the basis of the available chlorine in the active ingredient. For most purposes the concentration is between 3 to 10% available chlorine, with an optimum range of about 5 to 7%. For unusually powerful skin irritants the concentration can range up to 10%; however a concentration above 10% is rarely, if ever, required. For optimum results a concentration of at least 3% is desirable; however in some instances lower concentrations will be satisfactory, especially

when there is exposure to a relatively mild skin irritant.

An ointment containing the various ingredients can be applied to the skin in a protective coating that effectively prevents irritation by numerous industrial dermatitis irritants. It is effective for relatively long periods of time and is easily removed by washing or the like when its protection is no longer needed. The ointment is substantially non-irritating and can safely be left in contact with the skin for long periods of time and likewise can safely be used repeatedly. It affords ample protection against such skin irritants as dye intermediates, cashew nut oil (such as may be used in preparation of lacquers), poison ivy, lemon-grass oil, and chemical anti-oxidants (such as are used in the rubber and related industries, and the like).

For further illustration of this invention there are provided the following specific examples of protective compositions that effectively protect the skin against industrial dermatitis irritants. These examples are given in illustration of the invention and not in limitation thereof, and that the scope of the invention is not limited thereto.

Example 1

The following ingredients in proportion are thoroughly mixed together to form a cream-like paste:

	Per cent
2,4-dichlorophenylbenzoylchloramide	24
Magnesium stearate	25
Triacetin	51

This composition is a smooth cream-like paste and affords protection against poison ivy dermatitis for at least eight hours after its application to the skin.

Example 2

The following ingredients are thoroughly mixed together:

	Per cent
1,3,4,6-tetrachlor-7,8-diphenylglycoluril	24
Magnesium stearate	25
Triacetin	51

The resulting cream-like paste affords protection against skin irritants for at least eight hours after its application.

Example 3

The following ingredients are thoroughly mixed together:

	Per cent
N,N'-dichlor-N,N'-di(2,4,6-trichlorophenyl)urea	25
Cellulose acetate butyrate	4
Titanium dioxide	9
Triacetin	53
Magnesium stearate	9

This ointment gives lasting protection against dermatitis-producing skin irritants.

Example 4

The following ingredients are thoroughly mixed together:

	Per cent
1,3,4,6-tetrachlor-2,5-diimino-7,8-diphenylglycoluril	25
Cellulose acetate butyrate	4
Titanium dioxide	9
Triacetin	52
Magnesium stearate	9

The ointment provides a lasting protection against skin irritants and in addition provides a removable tint for coloring the skin, by virtue of which it is a valuable protective ointment for use by woodsmen and hunters.

The various ointments according to Examples 1 to 4 provide lasting protection against industrial dermatitis irritants and protection against poison ivy for long periods of time after its application to the skin. In addition, even repeated and long lasting applications produces substantially no irritating effect on the skin.

It is to be understood that various modifications and changes can be made in this invention without departing from the spirit and scope thereof as set forth in the appended claims.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

What is claimed is:

A skin-protecting ointment adapted to be spread on the skin for preventing contraction of poison-ivy dermatitis by reacting with the irritant tending to cause poison-ivy dermatitis to neutralize the irritant, said ointment having substantially from 3% to 10% of available chlorine and comprising the following ingredients in substantially the proportions indicated:

	Parts
1,3,4,6-tetrachlor-2,5-diimino-7,8-diphenylglycoluril	about 25
Cellulose acetate butyrate	about 4
Titanium dioxide	about 9
Triacetin	about 52
Magnesium stearate	about 9

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