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3,296,077

PILOMOTOR SHAVING COMPOSITIONS AND METHOD OF USING SAME

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No Drawing. Filed July 31, 1962, Ser. No. 213,609

Claims priority, application Germany, Aug. 4, 1961,

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7 Claims. (Cl. 167—85)

This invention relates to shaving compositions, and especially to improved shaving compositions adapted for use in conjunction with blade razors as well as electric razors.

More particularly, the present invention relates to shaving compositions, such as shaving soaps, shaving sticks, brush-type shaving creams, brushless shaving creams, aerosol shaving foams, pre-shave lotions and pre-shave creams, which are composed of the customary ingredients for such compositions and, in addition, contain a compound which is stable under acid as well as alkaline conditions and produces a temporary pilomotor effect upon the hairs of the facial beard.

Compositions comprising an ingredient which produces a pilomotor effect on the facial beard are well known. However, the concept of such compositions has heretofore been capable of application exclusively to pre-shave lotions adapted for use prior to shaving with electric dry-shavers. The pilomotor action of such pre-shave lotions is caused by the fact that the arrectus pilorum (hair follicle muscle) is contracted upon contact with the lotion and remains contracted for a period of time sufficient to last through the shaving operation or a little longer. This contraction of the arrectus pilorum causes the hair stubble to be pushed further above the skin surface line by about 0.2–0.3 mm., so that the beard hair can be cut in this position by the electric razor. When the contracting effects of the lotion wear off after completion of the shaving operation and the tonus of the hair follicle muscle returns to normal, the cut beard hair retracts to a point substantially below the skin surface line, giving the effect of what is commonly referred to as a "close shave." There is the further advantage that men with a heavy beard and rapid beard growth can maintain a presentable appearance for longer periods of time and need to shave only once a day instead of twice.

A number of compounds having a pilomotor effect have been proposed and investigated (Arzneimittelforschung, 4 (1954), 63–66). However, the common disadvantage of those investigated compounds is that they are highly unstable under even mildly alkaline conditions. Hence, their employment as pilomotor ingredients has been necessarily confined to compositions which are acidic in character, notably to acidic pre-shave lotions adapted for use in conjunction with electric dry-shavers. Any attempt to incorporate them into blade razor shaving compositions, such as shaving soaps or shaving creams of the brush or brushless type, which are alkaline in character, has met with failure because they decompose under the alkaline conditions existing in blade razor shaving compositions, forming decomposition products having no pilomotor effect whatsoever.

It is therefore an object of the present invention to provide stable acid, neutral or alkaline shaving compositions which produce not only the customary effects upon the facial beard but also a pilomotor effect.

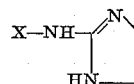
Another object of the present invention is to provide a stable ingredient having a pilomotor effect for shaving compositions, such as shaving soaps and creams of the

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brush or brushless type as well as electric pre-shave lotions and creams.

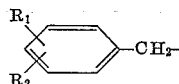
Other objects and advantages of the present invention will become apparent as the description thereof proceeds.

I have discovered that 2-amino-imidazoline compounds of the formula



(I)

wherein X is selected from the group consisting of naphthyl, tetrahydronaphthyl and substituents of a formula



wherein R_1 and R_2 are selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy, aryl and aryloxy, and their dermatologically acceptable, non-toxic acid addition salts produce excellent pilomotor effects and are stable under acid, neutral as well as alkaline conditions, and that the above objects and advantages may be achieved by incorporating compounds of the Formula I or their non-toxic acid addition salts into customary shaving compositions, such as shaving soaps and creams of the brush, brushless or aerosol foam type or electric pre-shave lotions and creams.

By "customary shaving compositions" I mean electric pre-shave and blade razor shaving compositions which are described in "Cosmetics, Science and Technology," edited by Edward Sagarin, Interscience Publishers, Inc., New York (1957). However, it should be understood that my invention may be practiced in conjunction with any shaving composition, regardless of whether the composition is acid, neutral or alkaline in character. The compounds of the Formula I or their non-toxic acid addition salts are advantageously added to and blended into customary shaving compositions in amounts of 0.01 to 10%, preferably 0.1 to 1%, by weight based on the total weight of the shaving composition.

Shaving compositions thus modified with the 2-amino-imidazoline compounds of the Formula I or their non-toxic acid addition salts have the advantage of being completely stable even over long periods of storage. Moreover, the imidazoline derivative component imparts to such compositions pilomotor properties in addition to the other properties. The pilomotor effect of shaving compositions modified in accordance with the present invention is characterized by an extraordinary rapid onset and satisfactory duration throughout the shaving operation.

The 2-amino-imidazoline compounds of the Formula I above and their non-toxic acid addition salts are known compounds and may be prepared by well known methods, such as by reacting a 2-alkyl-mercapto-imidazoline with an amine of the formula



wherein X has the meanings defined above in connection with Formula I. The sole exception is 2-(1',2',3',4'-tetrahydronaphthyl-1')-amino-imidazoline and its non-toxic acid addition salts. However, they and their preparation are described in my copending application 213,603, now abandoned, filed on even date, entitled "2-(1',2',3',4'-Tetrahydronaphthyl-1')-Amino-Imidazoline."

The following examples shall further illustrate the present invention and enable others skilled in the art to understand it more completely. It should be understood, however, that my invention is not limited to these particular examples. The parts are parts by weight.

Since the active ingredients with pilomotor activity according to the present invention are readily soluble in

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water and alcohol, the preparation of aqueous alcoholic solutions presents no difficulty of any kind. Soaps and creams are advantageously modified with a solution promoter, such as glycerin or other glycols.

Example I.—Pre-shave lotion

The pre-shave lotion is compounded in the usual manner from the following ingredients:

	Parts
2-benzylamino-imidazoline hydrochloride -----	0.50
Adipic acid di-isopropyl ester -----	10.00
Ethanol -----	60.00
Boric acid -----	1.00
Perfume -----	0.50
Distilled water -----	28.00
Total -----	100.00

Example II.—Shaving soap in cream form

The shaving soap cream is compounded in the usual manner from the following ingredients:

	Parts
2-(1-naphthylamino-imidazoline -----	0.30
Stearic acid -----	18.00
Coconut oil -----	12.00
Potassium hydroxide -----	7.00
Sodium hydroxide -----	1.00
1,2-propylene glycol -----	8.00
Perfume -----	1.00
Stearyl alcohol -----	0.70
Distilled water -----	42.00
Total -----	100.00

Example III.—Shaving soap

The shaving soap is compounded in the usual manner from the following ingredients:

	Parts
2-(1-tetrahydronaphthyl-amino)-imidazoline ---	0.20
1,3-butylene glycol -----	4.00
Stearic acid -----	52.00
Coconut oil -----	15.00
KOH -----	13.30
NaOH -----	0.50
Perfume -----	1.00
Distilled water -----	14.00
Total -----	100.00

Example IV.—Pre-shave cream

The pre-shave cream is compounded in the usual manner from the following ingredients:

	Parts
2-(p-chlorobenzyl-amino)-imidazoline · HCl ---	1.00
Cetyl alcohol -----	8.00
Glycerin monostearate -----	4.00
Glycerin -----	6.00
Isopropyl palmitate -----	2.00
Polyoxethylated sorbitol anhydride (Tween 60) -	6.30
Perfume -----	0.20
Distilled water -----	72.50
Total -----	100.00

The mildly alkaline wet-shave compositions illustrated above containing the compounds of the Formula I as the active pilomotor ingredient are stable over extended periods of time and exhibit excellent pilomotor effects. Of course, the quantity of pilomotor ingredient in these compositions may be varied within the percentage limits set forth above to meet particular requirements. Moreover, the active pilomotor ingredient according to the present

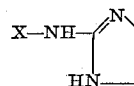
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invention may be incorporated into other shaving compositions with equal success. Finally, the particular compounds illustrated may be replaced by any of the other compounds embraced by Formula I above or their non-toxic, dermatologically acceptable acid addition salts. Examples of such acid addition salts are the hydrobromide, hydroiodide, sulfate, nitrate, succinate, maleate, tartrate, citrate and the like.

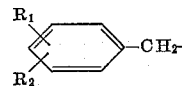
While I have illustrated my invention with the aid of certain specific embodiments thereof, it will be readily apparent to others skilled in the art that my invention is not limited to these embodiments and that various changes and modifications may be made without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. An alkaline shaving composition having uniformly dispersed therethrough 0.01 to 10% by weight of the composition a pilomotor acting compound selected from the group consisting of 2-amino-imidazoles of the formula



wherein X is selected from the group consisting of naphthyl, tetrahydronaphthyl and a radical of the formula



wherein R₁ and R₂ are selected from the group consisting of hydrogen and halogen and their non-toxic, dermatologically-acceptable acid addition salts.

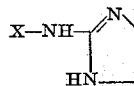
2. An alkaline shaving composition having uniformly dispersed therethrough 0.01 to 10% by weight of the composition of 2-benzylamino-imidazoline hydrochloride which imparts a pilomotor effect.

3. An alkaline shaving composition having uniformly dispersed therethrough 0.01 to 10% by weight of the composition of 2-(1-naphthylamino)-imidazoline which imparts a pilomotor effect.

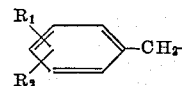
4. An alkaline shaving composition having uniformly dispersed therethrough 0.01 to 10% by weight of the composition of 2-(1-tetrahydronaphthylamino)-imidazoline which imparts a pilomotor effect.

5. An alkaline shaving composition having uniformly dispersed therethrough 0.01 to 10% by weight of the composition of 2-(p-chlorobenzylamino)-imidazoline hydrochloride which imparts a pilomotor effect.

6. A method of producing a pilomotor effect on the skin which comprises applying to the skin a compound selected from the group consisting of 2-amino-imidazoles of the formula



wherein X is selected from the group consisting of naphthyl, tetrahydronaphthyl and a radical of the formula

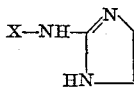


wherein R₁ and R₂ are selected from the group consisting of hydrogen and halogen and their non-toxic, dermatologically-acceptable acid addition salts.

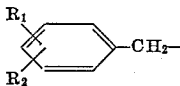
7. A method of producing a pilomotor effect on the skin which comprises applying to the skin an alkaline shaving composition having dispersed therethrough 0.01 to 10% by weight of the composition of a compound

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selected from the group consisting of 2-amino-imidazoles of the formula



wherein X is selected from the group consisting of naphthyl, tetrahydronaphthyl and a radical of the formula



wherein R₁ and R₂ are selected from the group consisting

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of hydrogen and halogen and their non-toxic, dermatologically-acceptable acid addition salts.

References Cited by the Examiner

FOREIGN PATENTS

1,032,482 6/1958 Germany.

OTHER REFERENCES

Arzneimittel Forschung, vol. 4, 1954, pp. 63-67.

10 Chem. Abs., vol. 54, pp. 588-589.

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