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MOISTUREPROOF MATERIAL AND METHOD OF MAKING SAME

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This invention relates to mostureproof materials and to a method of preparing the same. More particularly, it relates to preparing moisture proof materials with a wax composition which results in a product having a non-tacky surface which does not appreciably smear on handling.

In my copending application Serial No. 341,834, filed February 21, 1929, now Patent 1,989,681, there is disclosed a process of preparing moistureproof sheets or films of regenerated cellulose. According to one embodiment of that process, a sheet or film of regenerated cellulose, while in the gel state, is impregnated with a dispersion containing a wax and a plasticizer. The impregnated material is then passed through the drying rolls of the usual casting machine whereby the material is dried. The product resulting from such a procedure possesses an undesirable greasy surface and does not possess the necessary non-tacky surface. To overcome this, the aforementioned invention contemplates applying a surface coating which possesses the desirable surface characteristics.

I have found that I can prepare a moistureproof material having the desirable non-tacky surface, and which does not appreciably smear on handling, by treating a base formed of a nonfibrous, non-foraminous and preferably transparent material, for example, a cellulose material such as regenerated cellulose, cellulosic derivatives, for example, cellulose ethers, cellulose acetate, cellulose nitrate, etc., or an albuminous material, such as gelatin, agar-agar, hardened or not as desired, with an aqueous dispersion containing a moisture-proofing ingredient, such as a wax and a hardening agent, which may be a wax, for the moistureproofing wax and subjecting the treated base to a temperature at least approximately equal to the melting point of the moistureproofing wax ingredient, preferably simultaneously with or alternately subsequent to the drying of the treated base.

It is therefore an object of this invention to provide a transparent moistureproof material consisting of a base formed of a non-fibrous, non-foraminous and preferably transparent material, for example, a cellulosic material such as regenerated cellulose, cellulose derivatives, or an albuminous material, substantially coated with a moistureproofing wax composition and preferably containing a hardening agent for the wax, said material having a non-tacky surface which does not appreciably smear on handling.

Another object of this invention is to provide a moistureproof material by treating a base formed of a nonfibrous, non-foraminous and preferably transparent material, for example, a cellulosic material such as regenerated cellulose, cellulose derivatives or an albuminous substance, with an equeous dispersion containing a moistureproofing wax and a hardening agent for said moistureproofing wax, and subjecting the treated material to a temperature at least approximately equal to the melting point of the wax, either preferably simultaneous with or alternately subsequent to the drying thereof.

A specific object of this invention is to provide a method which may be used in combination with the usual procedure for manufacturing sheets or films of regenerated cellulose, and which comprises treating a desulphured and bleached sheet or film of regenerated cellulose while in the wet state with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and preferably also a softening agent for the regenerated cellulose, prior to the drying of the film, and thereafter drying the treated film in such a manner that preferably the treated film is first dried and then subjected to a temperature at least approximately equal to the melting point of the wax in the composition and finally to a temperature less than the melting point of the wax in the composition.

Other objects will become apparent from the following description and appended claims.

In accordance with one illustrative embodiment of the invention, a sheet or film of regenerated cellulose cast in the usual manner and washed, desulphured and bleached, as is well known in the art, prior to drying and while in the wet gel state is conducted into a bath containing an aqueous dispersion comprising a moistureproofing wax, a hardening agent for the moistureproofing wax and preferably also a softener for the regenerated cellulose. The film is then treated as hereafter more fully described.

In one illustrative embodiment, the treated film, after it leaves the bath and the excess composition removed in any convenient manner, may be fed through a series of drier rolls until it is dried. It may then be passed through a short series of drier rolls maintained at a temperature above the melting point of the wax in the mixture. Finally, the treated film may be passed through a series of rolls maintained at a temperature less than the melting point of the wax mixture. The film, after it has been cooled or permitted to cool, is wound into a roll and shipped. If desired, the film may be slit and wound into smaller rolls or cut into sheets.

In another exemplification of the invention, the film, as it leaves the bath, may be conducted through squeeze rolls and then passed through a straight tunnel drier, either vertical or horizontal, wherein the film is heated by warm air until the film and coating are completely dried and the waxes have been melted and coalesced to form transparent coatings. Subsequently, the

coated film is cooled in any suitable manner and then wound in rolls, slit or cut into sheets, as desired. It is to be noted that in the tunnel drier the film is maintained out of contact with rolls and is preferably held at its edge by some suitable device, such as a tenter frame.

As an alternate procedure, after the excess composition has been removed from the treated film, it may be passed over warm rolls whereby the major portion of the water is removed, and then passed through a tunnel drier as above described wherein the coated film is substantially completely dried and subjected to a temperature at least equal to the melting or crystallization point of the waxes in the compositions.

Still another modification contemplates drying the film, after the excess composition has been removed, by passing the same over rolls maintained at a temperature below the melting or crystallization point of the waxes, and then heating the dried coated film at a temperature above the melting or crystallization point of the waxes in a tunnel, as above described. The film is then cooled and wound into rolls, slit or cut into sheets, as desired.

In each of the modifications described, if, after the treatment in the tunnel, the coated film is to be passed over rolls, it is advantageous to permit the film to cool to a temperture at least sufficient to allow solidification of the waxes prior to contacting with the rolls.

Instead of heating the coated film in a tunnel as above described, it may be heated by hot plates or radiating fins disposed on both sides of the film and at a short distance therefrom. Due to the high heat, the waxes will be melted rather quickly. The time of passage of the film through these heating elements should therefore be of such duration that the film itself does not lose any appreciable amount of its hygroscopic moisture which would cause embrittlement. In this procedure, the film, after passing through the heating elements, should be chilled quickly.

The aqueous dispersion referred to above comprises one or more moistureproofing waxes or waxy substances and an agent for hardening the moistureproofing ingredients, whereby the coated base will be provided with a non-tacky surface which does not appreciably smear on handling. In the case where the process is combined with the process of preparing sheets or films of regenerated cellulose, the aqueous bath may also contain a softener for the regenerated cellulose.

Paraffin wax is the preferred moistureproofing ingredient. Of the paraffins, the high melting point varieties, such as those melting over 50° C. or better 55° C. or still better over 60° C., are preferred. However, other moistureproofing waxes, such as paraffin waxes of different melting points, relatively soft waxes, palm wax, spermaceti, ceresin, chlorinated hydrocarbons, beeswax, Japan wax, Chinese insect wax and certain synthetic waxes, may be used. It is, of course, to be understood that the waxes may be used either singly or in combination with one another, as desired.

As illustrative of the hardening agents for the moistureproofing waxes which can be used may be mentioned the hard waxes, such as candelilla wax, carnauba wax and some of the synthetic waxes; or resins, either natural or synthetic, for example, gum mastic, gum dammar, zinc resinate, coumarin resins, glyptal resins and toluene sulphonamide formaldehyde condensation products.

Any suitable dispersing agent, of which ammonium stearate, triethanolamine stearate, potassium abietate and sulphonated oils are illustrative examples, may be employed.

When the composition is to be employed with sheets or films of regenerated cellulose, any suitable softener for regenerated cellulose, such as glycerin, may be incorporated in the dispersion.

The proportions of the ingredients may vary within wide limits, depending inter alia on the degree of moistureproofness, the character of the surface, and the transparency of the product. A dispersion in which the solid ingredients are present in quantities from 2%–20% by weight has been found to give excellent results. When used to treat sheets or films of regenerated cellulose, the dispersion may also contain glycerin or some other softener in an amount from 2%–15% by weight.

In order to more clearly explain the invention and particularly the composition of the baths, the following specific illustrative embodiments are set forth:

	Parts
(1) Candelilla wax	60
Paraffin wax (M. P. 60° C.)	28
Ammonium stearate	12

This composition is prepared by melting the candelilla wax, the paraffin wax and stearic acid together. The molten wax mixture is poured into agitated water containing ammonium hydroxide which has been heated to a temperature of about 95° C. The stirring is continued until the emulsion so produced decreases in temperature to about 50° C.

The quantities of ammonium hydroxide and stearic acid are such as to produce 12 parts of ammonium stearate based on the quantities of wax used.

To employ this emulsion with sheets or films of regenerated cellulose it is diluted with water containing glycerin to yield a system containing approximately 10% of solids and 5% of glycerin by weight.

In the foregoing example, the dispersing agent is a soap preferably produced in situ by the reaction of the alkali and fatty acid. When other dispersing agents, such as sulphonated oils, are employed the procedure must be somewhat modified. Thus, when sulphonated oils constitute the dispersing agent, these are first dissolved in water, preferably heated, and the molten wax mixture added to the heated solution with agitation.

	Parts
(2) Candelilla wax	60
High melting paraffin	24
Gum mastic	4
Triethanolamine stearate	12

	Parts
(3) Carnauba wax	50
Chlorinated diphenyl	20
High melting paraffin	20
Potassium abietate	10

	Parts
(4) Candelilla wax	50
Chlorinated diphenyl	20
Spermaceti	20
Potassium abietate	10

	Parts
(5) Candelilla wax	60
High melting paraffin	24
Zinc resinate	6
Ammonium stearate	10

The compositions set forth in Examples 2–5 inclusive are prepared in a manner similar to that set forth under Example 1. To produce the final bath for the treatment of sheets or films of regenerated cellulose, each of the above compositions is mixed with water containing glycerin to yield a system containing 2%–20% of solid ingredients and 2%–15% of glycerin and preferably 10% of solids and 5% of glycerin.

It is apparent that if desired the glycerin may be omitted.

The proportions hereinbefore set forth are parts by weight.

Though the illustrative procedure has been described specifically in combination with the production of sheets or films of regenerated cellulose, the invention is not restricted thereto. A sheet or film of regenerated cellulose prepared in the usual manner and dried may also be moistureproofed in accordance with the principles of this invention. In such a case, the dried sheet or film of regenerated cellulose may, if desired, be first wetted with water, though this is not essential, and then treated as above described.

As apparent from the foregoing description, the invention is also not restricted to the treatment of sheets or films of regenerated cellulose. It is equally applicable to other non-fibrous, non-foraminous and preferably transparent cellulosic materials, such as sheets or films of cellulose derivatives, for example, cellulose ethers, cellulose nitrate and cellulose acetate; sheets or films of albuminous substances, such as the preferred hardened gelatin, agar-agar, and the like; sheets or films of regenerated cellulose coated with non-moistureproofing compositions, such as pyroxylin lacquers, varnishes, shellac, and the like.

When the dispersions hereinbefore described are to be used to treat films made of or materials coated with nitrocellulose, cellulose acetate, shellac etc., the glycerin may be omitted and there may be incorporated in the continuous phase of the dispersion a water-soluble organic liquid, such as ethyl alcohol, wood alcohol, esters of ethylene glycol etc., which serve to improve the spreading or wetting power of the dispersion when applied to materials of the type mentioned. Such dispersions may be prepared by dissolving the waxes or wax mixture in a solvent, such as toluene, benzene or the like and then emulsifying this solution in water containing the water-soluble organic liquid. Alternatively, these dispersions may be prepared as set forth in examples 1–5 inclusive, with the modification that the aqueous medium contains the water-soluble organic liquid.

The material constituting another part of this invention, as evident from the foregoing, consists of a base preferably formed of a non-fibrous, non-foraminous and preferably transparent cellulosic material, such as regenerated cellulose, cellulose derivatives or other substances, for example, albuminous substances or the like, coated with a moistureproofing wax composition, preferably containing an agent which functions as a hardening agent for the moisture-proofing composition and aids in imparting to the product a non-tacky surface which does not appreciably smear on handling. The material resists the penetration of moisture or water vapor therethrough to an extent at least 10 times, and in many cases 20, 30, 40, 50 or more times, as effective as the uncoated sheet when tested in accordance with the test set forth in the Journal of Industrial and Engineering Chemistry on page 575, vol. 21, No. 6 (June 1929). It is also flexible and capable of being bent and folded without substantially losing its effectiveness.

When the base is transparent, the final product is also transparent, the degree of transparency of the final product being at least approximately equal to that of the base before treatment. Because of the fact that the impregnating medium consists essentially of wax, the material may be joined or sealed to itself, similar or non-similar materials, by heat-sealing. This feature is extremely desirable when the material is employed as a wrapping tissue.

Since it is obvious that various changes and modifications may be made in the above description without departing from the nature and spirit thereof, this invention is not restricted thereto except as set forth in the appended claims:

I claim:

1. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of a non-fibrous cellulosic material with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and subjecting the treated material to a temperature at least approximately equal to the melting point of the wax in the composition.

2. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of a non-fibrous cellulosic material with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated material, and subjecting the dried material to a temperature at least approximately equal to the melting point of the wax in the composition.

3. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of regenerated cellulose with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and subjecting the treated material to a temperature at least approximately equal to the melting point of the wax in the composition.

4. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of regenerated cellulose with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at

least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated material, and subjecting the dried material to a temperature at least approximately equal to the melting point of the wax in the composition.

5. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of a cellulose derivative with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and subjecting the treated material to a temperature at least approximately equal to the melting point of the wax in the composition.

6. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of a cellulose derivative with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated material, and subjecting the dried material to a temperature at least approximately equal to the melting point of the wax in the composition.

7. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of an albuminous material with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and subjecting the treated material to a temperature at least approximately equal to the melting point of the wax in the composition.

8. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of an albuminous material with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated material, and subjecting the dried material to a temperature at least approximately equal to the melting point of the wax in the composition.

9. A method of preparing transparent moistureproof films of regenerated cellulose which consists in treating a transparent sheet or film of regenerated cellulose with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and subjecting the treated material to a temperature at least approximately equal to the melting point of the wax in the composition.

10. A method of preparing transparent moistureproof films of regenerated cellulose which consists in treating a transparent sheet or film of regenerated cellulose with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated material, and subjecting the dried material to a temperature at least approximately equal to the melting point of the wax in the composition.

11. A method of preparing transparent moistureproof films of regenerated cellulose which consists in treating a transparent sheet or film of regenerated cellulose with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, subjecting the treated material to a temperature at least approximately equal to the melting point of the wax in the composition, and then subjecting the material to a temperature less than the melting point of the wax in the composition.

12. A method of preparing transparent moistureproof films of regenerated cellulose which consists in treating a transparent sheet or film of regenerated cellulose with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated material, subjecting the dried material to a temperature at least approximately equal to the melting point of the wax in the composition, and then subjecting the material to a temperature less than the melting point of the wax in the composition.

13. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and

subjecting the treated film to a temperature at least approximately equal to the melting point of the wax in the composition.

14. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated film, and subjecting the dried film to a temperature at least approximately equal to the melting point of the wax in the composition.

15. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, subjecting the treated film to a temperature at least approximately equal to the melting point of the wax in the composition, and then subjecting the material to a temperature less than the melting point of the wax in the composition.

16. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax, a hardening agent for said wax and a softener for the regenerated cellulose in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated film, subjecting the dried film to a temperature at least approximately equal to the melting point of the wax in the composition, and then subjecting the material to a temperature less than the melting point of the wax in the composition.

17. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and subjecting the treated film to a temperature at least approximately equal to the melting point of the wax in the composition.

18. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated film, and subjecting the dried film to a temperature at least approximately equal to the melting point of the wax in the composition.

19. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, subjecting the treated film to a temperature at least approximately equal to the melting point of the wax in the composition, and then subjecting the material to a temperature less than the melting point of the wax in the composition.

20. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated film, subjecting the dried film to a temperature at least approximately equal to the melting point of the wax in the composition, and then subjecting the material to a temperature less than the melting point of the wax in the composition.

21. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of a non-fibrous material with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, and subjecting the treated material to a temperature at least approximately equal to the melting point of the wax in the composition.

22. A method of preparing a transparent moistureproof material having a non-tacky surface which does not appreciably smear on handling which consists in treating a transparent base formed of a non-fibrous material with an aqueous dispersion containing a moistureproofing wax and a hardening agent for said wax in proportions to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof product having a non-tacky surface which does not appreciably smear on handling, drying the treated material, and subjecting the dried material to a temperature at least equal to the melting point of the wax in the composition.

23. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous emulsion comprising 2% to 20% of solid ingredients comprising 60 parts of candelilla wax, 28 parts of high melting paraffin wax and 12 parts of ammonium stearate, the proportions being by weight to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof regenerated cellulose pellicle having a non-tacky surface which does not appreciably smear on handling, drying the treated film, and subjecting the dried film to a temperature at least approximately equal to the melting point of the wax in the composition.

24. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous solution comprising 2% to 20% of solid ingredients comprising 60 parts of candelilla wax, 24 parts of high melting paraffin wax, 4 parts of gum mastic and 12 parts of triethanolamine stearate, the proportions being by weight to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof regenerated cellulose pellicle having a non-tacky surface which does not appreciably smear on handling, drying the treated film, and subjecting the dried film to a temperature at least approximately equal to the melting point of the wax in the composition.

25. A process of preparing a transparent moistureproof pellicle of regenerated cellulose having a non-tacky surface which does not appreciably smear on handling and which consists in casting a cellulosic solution, purifying the cast film, treating the desulphured and bleached film while in the wet gel state with an aqueous solution comprising 2% to 20% of solid ingredients comprising 60 parts of candelilla wax, 24 parts of high melting paraffin wax, 6 parts of zinc stearate and 10 parts of ammonium stearate, the proportions being by weight to produce, upon heating to a temperature at least approximately equal to the melting point of the wax in the composition, a transparent moistureproof regenerated cellulose pellicle having a non-tacky surface which does not appreciably smear on handling, drying the treated film, and subjecting the dried film to a temperature at least approximately equal to the melting point of the wax in the composition.

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