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END WRAP IMPREGNATED WITH PANTOTHENYL ALCOHOL

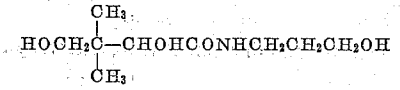
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This invention relates to a hair curling end wrap for curling or setting human hair and simultaneously treating the human hair with a compound which is a member of the B complex vitamins essential for growth and normal maintenance of the hair, which compound per se is extremely difficult to apply to the hair primarily because of its highly viscous state and to the method for making such a hair curling end wrap.

More specifically, this invention relates to a hair curling end wrap for curling or setting human hair and simultaneously treating the human hair and scalp with a d(+)-alpha,gamma-dihydroxy-beta,beta-dimethyl - butyric-acid-(hydroxy-alkyl)-amide, more particularly, d(+)-alpha, gamma-dihydroxy - N - (3 - hydroxypropyl)-beta,beta-dimethylbutyramide or d(+)-pantothenyl alcohol or d-Panthenol and to the method for making such a hair curling end wrap.

D(+)-pantothenyl alcohol is a viscous, slightly hygroscopic liquid and only the dextrorotatory form has vitamin activity and is prepared by the addition of propanolamine to optically active alpha,gamma-dihydroxy-beta, beta-dimethylbutyrolactone, as disclosed in U.S. Patent No. 2,413,077, and has the formula



D(+)-pantothenyl alcohol or d-Panthenol, because of its highly viscous state, has been difficult to handle particularly with respect to the application of it to hair, it being a member of the B complex vitamins essential for growth and normal maintenance of the hair and skin, including the scalp. Heretofore d(+)-pantothenyl alcohol or d-Panthenol has been employed topically for various dermatoses in an ointment or cream. Further, d(+)-pantothenyl alcohol or d-Panthenol is soluble both in water and in a water-soluble aliphatic alcohol of low molecular weight, such as methyl alcohol, ethyl alcohol, propyl alcohol, isopropyl alcohol, or mixtures of these alcohols.

As heretofore stated, it is known that d-Panthenol has been employed topically for various dermatoses in a cream or ointment in the amount of about 2% to about 5% by weight of the cream or ointment, and such creams are, by their very nature, greasy and rather difficult to apply to the hair. Further, the amount of d-Panthenol in the cream or ointment is extremely small with respect to the amount of the other ingredients therein and any application of same necessarily involves the application of the other cream or ointment ingredients together with the d-Panthenol to the area to which said cream or ointment is applied. Therefore, the application of such a cream or ointment to human hair necessarily involves also the application of very large amounts of other greasy ingredients, which have no direct beneficial effect to the hair, together with very small amounts of d-Panthenol to the hair and it is quite evident that the d-Panthenol will not be applied uniformly to the hair so treated.

D-Panthenol, by its very nature, viz. its high viscosity, possesses great utility as a grooming agent for human hair in addition to its value as a B complex vitamin essential for both growth and normal maintenance of human hair and the scalp. D-Panthenol has the consistency of thick maple syrup. However, because of its highly viscous state which has made it extremely difficult to handle, the comercial use for treating human hair has been undeveloped and, of necessity, limited.

An object of my invention is to provide a hair curling or setting end wrap for easily curling and grooming human hair and simultaneously treating the scalp, said end wrap comprising a porous fabric uniformly impregnated with a d(+)-alpha,gamma-dihydroxy-beta,beta-dimethylbutyric-acid-(hydroxy-alkyl)-amide.

Another object of my invention is to provide a hair curling or setting end wrap for easily curling and grooming human hair and simultaneously treating the scalp, said end wrap comprising a porous fabric uniformly impregnated with d-Panthenol.

Still another object of my invention is to provide methods for forming said aforementioned end wraps.

Other objects of my invention will become readily apparent from the following description which merely illustrates my invention and does not limit my invention.

I have discovered that d(+)-pantothenyl alcohol, or d-Panthenol, per se can be very easily and uniformly and rapidly applied to human hair while simultaneously imparting a curl or other desired shape to the human hair without utilizing in combination therewith any carrier materials such as cream-making or ointment-making ingredients such as hydrocarbons, alcohols, cream or ointment bases, or the like which have no direct beneficial effect to the hair and scalp when used in relatively large quantities. This is accomplished with a hair curling or setting end wrap comprising a porous fabric such as highly absorbent porous paper of substantially high purity cellulose paper having a high wet strength or cloth impregnated, by absorption and adsorption, each with an even, level, uniform aplication of d-Panthenol. The fabric is sufficiently porous that it can be uniformly impregnated with d-Panthenol by absorption and adsorption utilizing a solution of d-Panthenol in any of the aforementioned water-soluble aliphatic alcohols having a low molecular weight. The porous fabric has a thickness preferably no greater than 0.020 inch and possesses sufficient flexibility to enable strands or a tuft or tress of hair when embraced by the impregnated end wrap to be rolled into the desired curl or shape. The porous fabric preferably has a wet strength sufficient to withstand a tension of 50 grams applied to a one-half inch wide strip.

In using the end wrap of my invention, the hair is first thoroughly wetted with water and then combed into strands or tresses. An end wrap uniformly impregnated with d-Panthenol is then folded around a wet strand or tress of hair as closely to the scalp as possible and then moved towards the end of the strand or tress to cover the end of the strand or tress and, by means of a roller, the water-wetted strand or tress in the so-folded fabric is wound in the form of a rolled curl, using the roller as the form, and held in position by fasteners such as hairpins or clips. The d-Panthenol being soluble in water is uniformly removed from the end wrap by the solvent action of the water onto the hair of the strand or tress thereby uniformly grooming and treating the hair. The hair is allowed to dry, and the fabric together with the roller and fasteners are removed leaving a uniformly shaped curl each hair of which is uniformly treated and groomed with d-Panthenol.

The hair curling or seeting end wrap of my invention is preferably formed by thoroughly dissolving a predetermined amount of d-Panthenol in a predetermined amount of a water-soluble aliphatic, said respective amounts depending upon the type of fabric to be impregnated, alcohol of low molecular weight such as methyl alcohol, ethyl alcohol, propyl alcohol, isopropyl alcohol, or a mixture of at least any two of said alcohols, substantially water free, thoroughly wetting the porous fabric, preferably

the aforedescribed highly adsorbent high wet-strength porous paper known as Goody curl tissue #129 which is the product of H. Goodman & Sons, Division of Delamere Co., Inc., of New York, New York, with said alcoholic solution, as by dipping or immersion, rolling on, etc., and thoroughly drying said so-wetted fabric to remove thoroughly from said so-wetted fabric the alcohol solvent, thereby to obtain a substantially dry d-Panthenol uniformly impregnated, by absorption and adsorption, end wrap. As is quite readily apparent, the strength of the alcoholic solution with respect to the d-Panthenol varies with the type of fabric used and the greater the ability of the fabric used to absorb and adsorb d-Panthenol and still remain substantially dry, the greater the concentration of the d-Panthenol in the alcoholic solution. Likewise, the amount of d-Panthenol in the end wrap will vary with the type of fabric used. Likewise, another consideration with respect to the strength of the alcoholic d-Panthenol solution is of course governed by the d-Panthenol alcoholic solution easiest to handle for impregnating the various fabrics. I have found most preferable with respect to the aforedescribed high wet strength paper having a thickness of 0.015 inch a 2% d-Panthenol, by weight, alcoholic solution, the alcohol being a water-soluble aliphatic alcohol of low molecular weight, as hereinbefore described. The end warp of my invention is uniformly impregnated with d-Panthenol and is substantially dry and does not adhere to a similarly impregnated porous fabric when placed in contact therewith, as in the packaging of same for sale thereof. Further, to hasten the drying of the aforementioned thoroughly wetted fabric, the so-wetted fabric may be squeezed, as by passing between rollers, to remove excess solution prior to exposure to the drying atmosphere.

The following examples for preparing the hair curling or setting end wrap of my invention are set forth for the purpose of illustration only and are not considered to be limiting.

Example 1

There are dissolved in 98 grams of substantially water-free isopropyl alcohol 2 grams of d-Panthenol and there is thusly formed a 2% d-Panthenol, by weight, substantially water-free isopropyl alcohol solution. A sheet 9" x 8½" of high wet-strength porous paper, as heretofore described and known as Goody curl tissue #129, having a thickness of 0.015 inch is immersed in said solution and thoroughly wetted with said solution. The so-wetted paper is then dried, and the so-dried paper uniformly impregnated with d-Panthenol is not distinguishable by the naked eye from untreated paper and is dry to the touch. The impregnated sheet is cut into twelve 3" x 2" sheets and used to curl or set and treat the hair on the human head in the manner hereinbefore described. The hair is first wetted thoroughly with water and then combed into strands, twelve in number, to accommodate each 3" x 2" d-Panthenol impregnated sheet. Each end wrap is folded around a wet combed out strand of hair as closely to the scalp as possible and then moved towards the end of the strand to cover the strand end and, by means of a roller, the water-wetted strand in the so-folded fabric is wound in the form of a rolled curl, using the roller as the form, and held in position by clips. D-Panthenol is thusly uniformly removed from the end wrap by the solvent action of the water onto the hair of the strand. The hair is allowed to dry, and then the papers together with the rollers and clips are removed leaving twelve uniformly shaped curls each hair of which is uniformly treated and groomed with d-Panthenol.

Example 2

There are dissolved in a mixture of 90 grams of substantially water-free isopropyl alcohol and 8 grams of substantially water-free ethyl alcohol 2 grams of d-Panthenol and there is thusly formed a 2% d-Panthenol, by weight, substantially free alcoholic solution. Likewise, as in Example 1, twelve 3" x 2" end wraps are formed, each uniformly impregnated with d-Panthenol, and each is applied to human hair to form twelve uniformly shaped curls each hair of which is uniformly treated and groomed with d-Panthenol.

As is readily apparent, I have discovered an end wrap by means of which human hair can be easily and uniformly curled or set, groomed and treated with d(+)-pantothenyl alcohol or d-Panthenol, which prior to my invention necessitated the use in combination therewith of ingredients having no direct beneficial effect on the human hair and was extremely difficult to handle because of its extremely viscous state.

Many changes and alterations may be made without departing from the spirit and scope of this invention which is set forth in the appended claims which are to be construed as broadly as possible in view of the prior art.

I claim:

1. A substantially dry hair curling end wrap for treating human hair comprising a porous fabric impregnated with a d(+) - alpha,gamma-dihydroxy-beta,beta-dimethyl-butyric acid-(hydroxy-alkyl)-amide.

2. A substantially dry hair curling end wrap for treating human hair comprising a porous fabric impregnated with d(+)-pantothenyl alcohol.

3. A substantially dry hair curling end wrap for treating human hair comprising a porous paper sheet impregnated with d(+)-pantothenyl alcohol.

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