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HAIR TREATING CREAM

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This invention relates in general to certain new and useful improvements in hair treating agents and, more particularly, to a hair treating cream useful for modifying the physical characteristics of the hair to such an extent as to make it possible to curl straight hair or straighten curled hair, whichever may be desired by the user.

Heretofore, a number of agents, compounds, and compositions have been developed and used for imparting modified physical characteristics to the hair, such as, for instance, permanent wave solutions and hair straightening agents. All of these agents are based upon a physical characteristic of hair which by now has become quite well known, namely, that the curliness or straightness of the hair depends upon the cross-sectional shape of the hair fiber. Straight hair, that is to say, hair that does not have a natural curl or so-called wave, has been found to have one type of cross-sectional shape, and extremely curly or so-called kinky hair, commonly found in members of the African race, possesses a different type of cross-sectional shape. Between these limits, there is almost infinite gradation in cross-sectional shape, accounting for various types of curly or so-called wavy hair. All so-called permanent wave solutions and hair straighteners possess the property of softening the hair fibers to a sufficient extent to make it possible to modify the cross-sectional shape of the hair fiber and are employed in conjunction with some means or method for effecting this modification of cross-sectional shape once the hair fiber has been chemically softened and the treatment is followed by some so-called setting process, whereby the walls of the hair fibers again resume rigidity in the new cross-sectional shape.

Perhaps the most widely known application of this type of treatment is the so-called permanent waving of hair. Until very recently, the business of permanent waving involved the use of expensive chemical ingredients, oils, chemically treated pads, and various types of complicated electric heating machines for carrying out the process and required the person whose hair was being waved to spend many hours and rather substantial amounts of money in this form of self beautification. More recently, certain solutions have been developed which make possible a so-called "cold permanent wave," which eliminates some of the discomfort involved in the hair waving systems employing heat, and some companies have manufactured cold wave solutions which are sold over the counters in drug stores and cosmetic departments for application by the user at home. All hair treating agents, however, are liquids and are somewhat difficult to apply to the hair. By reason of the fluid characteristics of a liquid, great care must be taken to avoid excess application of these chemicals

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directly to the scalp. Furthermore, it requires a fair amount of manual skill and technique to apply the proper quantity of liquid to the strands of hair being treated.

It is, accordingly, the principal object of the present invention to provide a hair treating agent in the form of a paste-like cream which is extremely economical in cost as compared to heretofore existing hair treating agents and which is unusually convenient for the user to handle and apply.

It is a further object of the present invention to provide a paste type hair treating agent which has improved hair treating properties, is relatively safe for the user to apply to the hair and scalp, accomplishes the hair treating result in a minimum amount of time, and is otherwise highly effective.

It is likewise an object of the present invention to provide a paste type hair treating cream which may be economically and conveniently packaged in a collapsible tube, jar, or other container suitable for the packaging of creams with attendant ease of shipping, handling, and storing and ultimate convenience in actual use.

It is an additional object of the present invention to provide a cream type hair treating agent which is stable in form and will not break down or separate into its component ingredients upon standing and, furthermore, is not adversely or deleteriously affected by proximity to non-ferrous metals, such as the metal in a collapsible tube.

And with the above and other objects in view, my invention resides in the novel processes and compositions of matter presently described and pointed out in the claims.

Broadly speaking, my present invention comprises the compounding of a base including an acid stabilized emulsifying agent, such as glyceryl monostearate, polyglycol monostearate, or similar monostearate, either alone or modified with a sulphated oil, and a hair softening solution having the active hair-softening chemicals, the latter solution being properly compounded or mixed with the base in the formation of a smooth stable paste-like cream preferably having the consistency of cold cream, for example.

By way of illustration, but not by way of limitation, the following preferred formulas are typical of the present invention:

EXAMPLE I

Base

Emulsifier consisting of 90% by wt. polyglycol monostearate and 10% by wt. stearyl amide	grams	50
NaOH	do	2
Water	ounces	4

(Add NaO to H₂O, when dissolved add emulsifier above specified.)

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Alkaline solution

NaOH	grams	7½
Water	ounces	4

Softener solution

Thioglycolic acid (38%)	ounces	7
Ammonia water (26%)	do	1
Alkaline solution (as above)	do	¼
Distilled water	do	7
Ammonium sulphite	grams	15
Sodium lauryl sulphate	grains	7
Add color and perfume oils to suit.		

Compounding directions

To 68 grams of the base, as above constituted, add 1 ounce of the softener solution slowly while stirring vigorously. Stirring is continued until a smoothly emulsified creamy paste is formed. The paste thus formed may be packaged in tubes or jars, as desired.

The foregoing formula may, by ordinary arithmetical computations, be reduced to consolidated form. For example, taking into account that 4 ounces of water weigh 113.4 grams, the total weight of the quantity of base made from the above specified ingredients will be 165.4 grams, so that the water content, in terms of percentage, may be computed by dividing 113.4 by 165.4, resulting in 68.56%. Similarly, the percentage of NaOH will be found to be 1.21%, and the percentage of emulsifier will be found to be 30.23%. The softener solution, when computed in terms of weight, will be found to total 447.79 grams and the percentages by weight of contents thereof will be thioglycolic acid 44.32%, ammonia water 6.33%, alkaline solution 1.58%, water 44.32%, ammonium sulphite 3.35%, sodium lauryl sulphate 0.10%. Since there are 68 grams of softener solution, the finished paste, based upon the above formula, will have a weight of approximately 96.35 grams, so that in terms of percentage by weight in the finished product the base will represent 70.58%, and the softener solution 29.42%. Therefore, the percentages of the ingredients in the base and softener solution, respectively, can be converted to percentages in the consolidated formula simply by multiplying the factors 70.58 and 29.42, respectively. For instance, there is 44.32% thioglycolic acid in the solution, and 44.32 multiplied by 29.42 will yield the figure 13.04, which is the percentage by weight of thioglycolic acid in the finished product. Similarly, taking the emulsifier as being 30.23% of the base and the base factor as being 70.58, 30.23 multiplied by 70.58 yields the figure 21.34 so that the emulsifier constitutes 21.34% by weight of the finished product. Since there is water in both the base and the softener solution, the respective percentages in the two may be computed in the above manner, and such percentages added to get the total percentage by weight of water in the consolidated formula, and a similar method of computation can likewise be applied to the caustic which is present in small quantities in both the base and the softener solution. By this procedure of computation, the following consolidated formula is achieved:

	Percent by weight
Emulsifier (as above)	21.34
Sodium hydroxide	.88
Thioglycolic acid (38% aqueous solution)	13.04
Ammonia (26% aqueous solution)	1.85
Ammonium sulphite	1.00
Sodium lauryl sulphate	.03
Water	61.86

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*EXAMPLE II**Base*

Acid emulsifying glyceryl monostearate	ounces	½
Oleic acid	drums	2
Ammonia water (26%)	do	4
Water	ounces	4

Softener solution

As in Example I.

Compounding directions

To the above base, add 2½ oz. softener solution and agitate thoroughly until smooth stiff cream is formed.

It has also been found that bases similar to those above described may be formulated employing glyceryl monostearate and a sulphated oil, unmodified polyglycol monostearate with borax added, or any similar modified and stabilized monostearates. By "modified" is meant that the ester contains multiple ether linkages usually obtained by reacting the ester catalytically with various alkaline oxides, and by "stabilized" is meant the addition of a buffering agent enabling the ester to form stable emulsions in the presence of acids. Similarly, in Example II, above oleic acid may be omitted and a sulphated oil wetting agent may be substituted.

It has been found in connection with the present invention that straight chain acids containing a sulfhydryl or mercapto group and the salts of such acids are highly effective hair softening agents, such as, for example, thioglycolic acids (as above specifically set forth), ammonium thioglycolate, thioglucose, and the like.

Hair treating creams compounded in accordance with the present invention may be packaged in collapsible tubes or any other type of paste container and will be found to be stable, non-separating, and inactive with respect to non-ferrous metals.

Hair treating creams or pastes formulated and compounded in accordance with the present invention may be employed in the following manner for imparting a permanent wave to the hair. The hair should be shampooed and thoroughly cleansed, using any conventional type of shampoo soap. After the hair has been shampooed, it should be rinsed thoroughly in warm water and dried with a towel. While still slightly damp, the hair should be parted down the center of the head and divided into a plurality of separate strands about one and one-half inches wide at the scalp and approximately a sixteenth of an inch thick. Starting preferably with the strand which is nearest the part and just above the forehead, a quantity of cream or paste is squeezed out of the tube onto the strand adjacent to, but not directly upon, the scalp and is worked thoroughly into the strand of hair with a small brush or by gripping the strand between the fingers and sliding the fingers downwardly a number of times to work the paste thoroughly into the strand. Thereupon, the strand is wound up upon any conventional type of curler and secured against the head in the formation of a roll or curl. The degree or extent of wave can be controlled by the tightness with which the hair is rolled up on the curler. If a so-called tight wave or close curl is desired, the hair is rolled up very tightly on the curler. On the other hand, if a loose or gentle

wave is desired, the strand of hair is rolled up rather loosely upon the curler.

Each strand of hair is similarly treated with the cream or paste and rolled up upon its individual curler in successive order around the entire head. It will, of course, be evident that the number of strands and resultant rolls or curls will depend upon the quantity, length, and thickness of hair of each individual user. In ordinary cases, it has been found that approximately twenty-five to thirty such curls will be formed. The hair is allowed to remain rolled up upon curlers for approximately two hours. In the case of extremely fine soft hair, this time period may be reduced to approximately one and one-half hours, and, contrariwise, in the case of extremely coarse wiry hair, the time period should be lengthened to approximately two and one-half hours. In any case, the actual length of the time period with hair treating pastes of the present invention is at least an hour to an hour and a half shorter than the time period required for any of the liquid type of solutions heretofore available.

After the proper time has elapsed, each roll or curl should be treated with a so-called "neutralizer" solution, which consists of a dilute solution of an oxidizing agent, such as potassium bromate, sodium perborate, or hydrogen peroxide. Each curl is thoroughly saturated with the neutralizer solution and, after all the curls have been so saturated, the hair is allowed to remain in this condition for approximately ten minutes. Thereupon, the hair is unwound from the curlers and a further application of neutralizer solution may be employed, if desired. Finally, the hair is rinsed with cold water for approximately one minute and dried thoroughly with a towel, whereupon the "permanent wave" will be completed and the hair will be ready for setting in any favorite or desired hair style.

If desired, so-called kinky hair may be straightened by employing the above described hair treating pastes or creams in the following manner. The hair is thoroughly shampooed and dried with a towel and, while damp, is brushed downwardly from the center of the scalp toward the shoulders with an extremely coarse stiff brush. The hair treating paste or cream is squeezed out of the tube directly onto the hair and brushed into it with a continued downward stroking movement, using the same very stiff coarse-bristled brush, and this procedure is continued around the entire head until the hair is, in effect, plastered down against the scalp in fully distended or straightened position. The paste-like cream has the unique property of holding the straightened hair permanently in this position without resort to straightening irons or other mechanical expedients. After the hair has been allowed to remain in this so-called "plastered down" condition for approximately two hours, a neutralizer solution is thoroughly sponged into the hair with a small sponge or cotton swab and is allowed to remain for approximately ten minutes. Thereafter, the hair may be rinsed for about one to two minutes in cold water, dried with a towel, and combed, set, or otherwise coiffed in any usual or conventional way.

It should be understood that changes in the methods, compositions, percentages, and combinations above set forth may be made without

departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A hair treating paste adapted for operation at room temperature and comprising:

	Per cent by weight
Emulsifier containing approximately 90% polyglycol monostearate and approximately 10% stearyl amide	21.34
Sodium hydroxide	.88
Thioglycolic acid (38% aq. soln.)	13.04
Ammonia (26% aq. soln.)	1.85
Ammonium sulphite	1.00
Sodium lauryl sulphate	.03
Water	61.86

2. A cold hair-waving and hair-straightening cream having a paste-like consistency and comprising approximately:

	Per cent by weight
Emulsifier containing approximately 90% polyglycol monostearate and approximately 10% stearyl amide	21
Thioglycolic acid (38% aq. soln.)	13
Ammonia (26% aq. soln.)	1.85
Ammonium sulphite	1
Caustic soda	1
Sodium lauryl sulphate	.03
Water	62

3. An emulsified cold hair-waving and hair-straightening paste comprising approximately:

	Per cent by weight
Modified and stabilized polyglycol monostearate emulsifier	21
Thioglycolic acid (38% aq. soln.)	13
Ammonia (26% aq. soln.)	1-2
Ammonium sulphite	1
Water	62

- And less than 1% each of strong alkali wetting agent.

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