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(54) **METHOD FOR TREATING THE HAIR USING STEAM**

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(57) **ABSTRACT**

A subject-matter of the present invention is a method for treating hair fibres which comprises: (i) the application to hair fibres of steam, (ii) the shaping of these hair fibres at a temperature of greater than 50° C., the application of the steam and the shaping being unconnected. The method of the present invention makes it possible in particular to obtain rapid shaping of the hair fibres while improving their cosmetic properties.

METHOD FOR TREATING THE HAIR USING STEAM

[0001] The present invention relates to a novel method for treating hair fibres, in particular the hair.

[0002] It is known to smooth hair fibres with smoothing irons. These irons make it possible to obtain smoothing of keratinous fibres at high temperature without pulling on the hair, in contrast to blow drying. However, in order to obtain a good smooth appearance, it is necessary to carry out several passes of the iron, which considerably extends the hair treatment time. Furthermore, the repeated application of the flat smoothing irons can cause damage to the hair fibres due to the operating temperature of the smoothing iron.

[0003] It is also known to use steam for the treatment of the hair, it being possible for this steam treatment to be combined with various hair cosmetic treatments. In particular, a hair treatment method is known in the field of hair setting (non-permanent shaping) which comprises the application of steam, for a time of less than 2 minutes at a temperature of at least 75° C., to keratinous fibres held under mechanical tension and on which a specific cosmetic composition comprising, for example, an oil, a silicone, oxidation dyes, natural dyes, direct dyes and others has been applied beforehand. Mention may be made, as examples, of the documents EP 659 395, EP 659 393, EP 659 396 and EP 659 397.

[0004] Moreover, it is known to treat the hair with smoothing irons which deliver steam. However, these irons do not make it possible to obtain a satisfactory cosmetic effect as the heat dispensed by these irons is less than that dispensed by conventional smoothing irons. Mention may in particular be made of the document WO 2004/002262, which describes a method employing such a method, the dispensed vapour additionally comprising a nonvolatile shaping cosmetic product.

[0005] These methods, although improving the cosmetic and visual properties of the hair fibres, are lengthy and often difficult to carry out. Moreover, the cosmetic effect obtained is not persistent with regard to washing.

[0006] Thus, the aim of the present invention is to develop a novel method for treating keratinous fibres which makes it possible to obtain an improvement in the cosmetic and visual properties of hair fibres with methods which are easy and rapid to carry out and which are persistent with regard to at least one washing.

[0007] This aim is achieved by the present invention, a subject-matter of which is a method for treating hair fibres which comprises:

[0008] (i) the application to hair fibres of steam by means of a device capable of generating steam, for example an amount of steam of greater than 5 g/min,

[0009] (ii) the shaping of these hair fibres at a temperature of greater than 50° C.,

the application of the steam and the shaping being unconnected.

[0010] In other words, for a treated lock of hair fibres, the stage of application of steam and the stage of shaping are not carried out simultaneously on the same portion of hair fibres, it nevertheless being possible for these two stages to be carried out with the same device configured to carry out these two stages successively. Alternatively, two separate devices can be used to carry out these unconnected stages. According to the scope of the invention, the application of steam is separated from the shaping step so that when a lock is pro-

cessed, the steam is applied to a portion of the lock not imprisoned into the shaping means. Besides, this process of treatment is preferably implemented with a natural drying of hair. It is understood by natural drying of hair a drying which does not include the application of blown air or pulsed air, for example through a dry hair or a fan.

[0011] The method of the present invention makes it possible in particular to obtain rapid shaping of hair fibres while improving their cosmetic properties. Furthermore, the method of the present invention makes it possible to obtain an improvement in the cosmetic properties which is persistent with regard to time and/or at least one washing.

[0012] The hair fibres treated by the method of the invention thus exhibit an improved smoothing with a shinier appearance than that obtained with the methods of the art, this being the case even in the absence of additional cosmetic active principles.

[0013] In the context of the present invention, the term "hair fibres" is understood to mean keratinous fibres, such as the hair, or synthetic fibres, referred to as "extensions", which are intended to be attached to the hair of a person by various means, in particular by adhesive bonding, this being done in order to modify the appearance of the natural hair of a person, for example by modifying the volume, the colour or the appearance of the hair.

[0014] The application of steam can be carried out before or after the stage of shaping the hair fibres. According to a specific embodiment, the shaping of the hair fibres is carried out after the treatment of these hair fibres with steam.

[0015] The application of steam can be repeated several times on the same fibres; however, it is possible to obtain a very good cosmetic result after a single application of steam.

[0016] According to a specific embodiment of the invention, the amount of steam is between 10 and 60 g/min.

[0017] The application of steam can be carried out using any device known per se for generating the amount of steam of use in the method of the invention. According to a specific embodiment, this device is portable, that is to say that the tank which makes it possible to generate the steam is in contact with the part of the device comprising the orifices for dispensing the steam.

[0018] The stage of shaping the hair fibres can be carried out with any type of known means of the art making it possible to obtain a temperature on the fibres of at least 50° C. The means for shaping the hair fibres are, for example, devices exhibiting a heating surface capable of coming into contact with the hair fibres and of applying a tension, even a light tension, to these fibres which makes it possible to smooth, style or disentangle the hair fibres.

[0019] According to a specific embodiment of the method of the invention, the shaping temperature is greater than 90° C., preferably between 90° C. and 230° C., in particular between 90° C. and 200° C., for example from 150° C. to 200° C.

[0020] According to an alternative form, the shaping stage is carried out using smoothing irons. Mention may in particular be made of the flat smoothing irons described in Patents U.S. Pat. No. 5,957,140, U.S. Pat. No. 5,046,516, U.S. Pat. No. 7,044,139, U.S. Pat. No. 5,223,694 and U.S. Pat. No. 5,091,629.

[0021] Although the shaping, in particular the smoothing, of the hair fibres can be carried out several times, results which are already very satisfactory are obtained with a single pass of the smoothing iron.

[0022] The method of the present invention makes it possible, in particular when the application of the steam is carried out before the shaping, to satisfactorily hydrate the fibres in order to reduce the damage to the latter during the implementation of the shaping at a temperature of greater than 50° C.

[0023] When the application of the steam takes place after the shaping, the steam will rehydrate the fibres, reducing in the same way the damage to hair fibres.

[0024] Preferably, the shaping stage is carried out after the treatment with steam. According to this embodiment, the steam application is carried out solely before the step of shaping the air

[0025] According to a specific embodiment, the method of the invention furthermore comprises a stage of cosmetic treatment of the hair fibres using a composition comprising one or more cosmetic active principles.

[0026] This cosmetic treatment stage can be carried out before or after the application of the steam and/or before or after the shaping of the hair fibres. It should in particular be noted that this cosmetic treatment stage is not carried out simultaneously with the application of the steam.

[0027] According to a first alternative form, the method of the invention comprises, in order, the cosmetic treatment stage, followed by the application of the steam and then by the shaping of the hair fibres.

[0028] According to a second alternative form, the method of the invention comprises, in order, the application of the steam, followed by the shaping of the hair fibres and then by the cosmetic treatment stage.

[0029] According to a third alternative form, the method of the invention comprises, in order, the application of the steam, followed by the cosmetic treatment stage and then by the stage of shaping the hair fibres.

[0030] According to these two alternative forms, the method of the invention can comprise a second stage of post-treatment or pretreatment of the hair fibres, identical to or different from the first cosmetic treatment stage.

[0031] The cosmetic treatment stage can be a stage of caring for the hair fibres, which may or may not be followed by a rinsing, a stage of washing the fibres, a stage of shaping or controlling the shape, for example using a fixing gel, a shaping mousse, a lacquer or a leave-in conditioner in the cream form, a stage of permanent, semipermanent or temporary dyeing, a stage of permanent deformation using a reducing agent and optionally a fixative, or a stage of alkaline hair straightening with sodium hydroxide or with guanidine carbonate.

[0032] Mention may be made, as active cosmetic agents, of dye precursors, direct dyes, silicone or nonsilicone and fixing or nonfixing polymers, mineral, vegetable or synthetic oils, waxes, reducing agents, oxidizing agents, UV screening agents, conditioning agents, agents for combating free radicals, sequestering or stabilizing agents, antioxidants, preservatives, acidifying agents, alkaline agents, fragrances, volatile or nonvolatile silicones, reactive or chemically inert polymers, pigments, solid organic or inorganic particles, thickeners, vitamins, plant extracts, propenetrating agents or agents for swelling the fibre.

[0033] The cosmetic treatment stage can be carried out starting from a composition in the form of a thickened or nonthickened lotion, of a cream or of a gel or in any other appropriate form.

[0034] The compositions used are generally aqueous compositions which can comprise ingredients commonly used in

cosmetic compositions, such as solvents, surface-active agents, thickeners, preservatives, fragrances or any other additive used in this type of composition.

[0035] According to a specific embodiment, the method of the invention can comprise an additional final stage of shaping, for example a smoothing stage, in particular if the preceding stage is a cosmetic treatment stage.

[0036] The following examples illustrate the method of the invention employed in several hair cosmetic applications.

EXAMPLE 1

[0037] Locks of hair are washed and superficially dried. The hair is then predried until drying of approximately 80% is obtained.

[0038] Steam is applied to these predried locks under the conditions defined in the present invention, this application of steam being followed by the stage of shaping/smoothing by means of a smoothing iron heated to at least 100° C. This treatment is carried out lock by lock over the entire hair.

[0039] A permanent oxidation dye with a shade of 5.64 (coppery red light chestnut from the Majirouge range) is subsequently applied, which application consists in applying, to the hair fibres, one or more oxidation bases and one or more couplers well known in the field of permanent dyeing, in the presence of an oxidizing agent (hydrogen peroxide).

[0040] At the same time, the above test is again carried out but without employing the stage of application of steam or the stage of shaping under the preceding conditions but while carrying out smoothing with a conventional heating smoothing iron.

[0041] It is observed that the hair treated with the steam is shinier and smoother than the hair treated solely with the conventional heating smoothing iron.

[0042] After several shampoos, the colour on the hair treated with the steam is observed to last longer.

EXAMPLE 2

[0043] A reducing cream comprising thioglycolic acid salts is applied with a brush to locks of washed and dried hair. After the setting time, the locks are again rinsed, then superficially dried and predried to 80% using a hairdryer.

[0044] Steam is applied to these predried locks under the conditions defined in the present invention, this application of steam being followed by the stage of shaping/smoothing by means of a smoothing iron heated to at least 100° C. This treatment is carried out lock by lock over the entire hair.

[0045] The fixative is subsequently applied to the entire hair. After a setting time, the locks are rinsed, superficially dried and predried.

[0046] At the same time, the above test is again carried out but without employing the stage of application of steam or the stage of shaping under the preceding conditions but while carrying out smoothing with a conventional heating smoothing iron.

[0047] It is observed that the hair treated with the method of the invention is shinier and smoother to the touch and visually. The hair is furthermore markedly better straightened with the method of the invention.

[0048] After several shampoos, it is found that the smoothing effect persists when it has been obtained with the method of the invention.

EXAMPLE 3

[0049] The care product "Ciment thermique" from Kerastase, which is a leave-in care product comprising silicones and cationic surfactants, is applied to washed and superficially dried locks of hair. The locks are then predried until drying of approximately 80% is obtained.

[0050] Steam is applied to these predried locks under the conditions defined in the present invention, this application of steam being followed by the stage of shaping/smoothing by means of a smoothing iron heated to at least 100° C.

[0051] At the same time, the above test is again carried out but without employing the stage of application of steam or the stage of shaping under the preceding conditions but while carrying out smoothing with a conventional heating smoothing iron.

[0052] It is observed that the locks treated according to the method of the present invention are shinier and smoother to the touch and visually. The hair is markedly better smoothed.

[0053] After several shampoos, it is found that the smoothing effect persists when it has been obtained with the method of the invention.

EXAMPLE 4

[0054] A conditioner "Nutri-Ceramide" of the Elsève trademark is applied to washed and superficially dried locks of hair. After the setting time, the locks are rinsed, then superficially dried and predried to 80% using a hairdryer.

[0055] Steam is applied to these predried locks under the conditions defined in the present invention, this application of steam being followed by the stage of shaping/smoothing by means of a smoothing iron heated to at least 100° C.

[0056] At the same time, the above test is again carried out but without employing the stage of application of steam or the stage of shaping under the preceding conditions but while carrying out smoothing with a conventional heating smoothing iron.

[0057] It is observed that the locks treated with the method of the present invention are shinier and smoother to the touch and visually. The locks are markedly better smoothed.

[0058] After several shampoos, it is found that the smoothing effect persists when it has been obtained with the method of the invention.

1. Method for treating hair fibres which comprises:
the application to hair fibres of steam by means of a device capable of generating steam,
the shaping of these hair fibres at a temperature of greater than 50° C.,
the application of the steam and the shaping being unconnected.

2. Method according to claim 1, in which the application to hair fibres of steam is carried out by means of a device capable of generating an amount of steam greater than 5 g/min.

3. Method according to claim 1 or 2, in which the shaping temperature is greater than 90° C., preferably between 90° C. and 230° C., preferably between 90 and 200° C.

4. Method according to any one of the preceding claims, in which the shaping is carried out using a smoothing iron.

5. Method according to claim 4, in which the smoothing is carried out in a single pass per treated lock of hair fibres.

6. Method according to any one of the preceding claims, comprising a single application of steam per lock of treated hair fibres.

7. Method according to any one of the preceding claims, in which the shaping is carried out after the stage of application of steam.

8. Method according to claim 7 in which the steam application is carried out solely before the step of shaping

9. Method according to any one of the preceding claims, additionally comprising a stage of cosmetic treatment of the hair fibres using a composition comprising one or more cosmetic active principles.

10. Method according to claim 9, comprising, in order, the cosmetic treatment stage, followed by the stage of application of steam and then by the stage of shaping the hair fibres.

11. Method according to claim 9, comprising, in order, the stage of application of steam, followed by the stage of shaping the hair fibres and then by the cosmetic treatment stage.

12. Method according to claim 9, comprising, in order, the application of the steam, followed by the cosmetic treatment stage and then by the stage of shaping the hair fibres.

13. Method according to any one of claims 9 to 11, in which the cosmetic treatment stage is chosen from a stage of caring for the hair fibre, a stage of washing the fibres, a stage of shaping, a stage of permanent, semipermanent or temporary dyeing, a stage of permanent deformation using a reducing agent and optionally a fixative, or a stage of alkaline straightening with sodium hydroxide or with guanidine carbonate.

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