METHODS, COMPOSITIONS AND USES RELATING THERETO

The present invention relates to a method of treating a dyed material, to compositions for use in such methods and to uses relating thereto. In particular the present invention relates to a method of treating a dyed keratinous material, especially hair. The method is especially useful for reducing, inhibiting or preventing the loss of colour from dyed materials, especially dyed hair.

Procedures for dyeing materials, especially hair and other keratinous materials, have been in existence for many years. However the dyed materials lose colour intensity and vibrancy after dyeing. One cause of this loss of colour is believed to be leaching of dye molecules from the materials when in contact with water or other solvents which can dissolve/solubilise the dyes and cause them to diffuse out of the material. This colour loss can thus occur during processes such as washing of the material (or shampooing in the case of hair) or during other processes where the material comes into contact with water or other solvents that can leach dyes from the material. The problem is greater in the case of small dye molecules as these are more mobile and can thus be leached from the material at a faster rate than larger dye molecules. As a result, repeated washing of materials can lead to colour loss over time. This can also cause a colour shift, for example whereby one or more dye compounds present in a mixture used to colour a material are leached from the material to a greater extent than the others during washing.

For textile materials and fabrics colour loss can occur during washing of the material, either in a hand washing process or in an automatic washing machine.

One effective means by which colour loss can be prevented or inhibited is by treatment with formaldehyde. However formaldehyde is a suspected carcinogen and thus its use in cosmetic compositions is strictly regulated and highly undesirable. There have been numerous attempts to provide alternative means for combatting colour loss from hair. However to date none of these have been completely satisfactory and there therefore exists a need to develop further improved strategies.

It is an aim of the present invention to provide means for reducing, inhibiting or preventing colour loss from dyed materials.

Summary

In one aspect, there is provided a method of combatting colour loss from a dyed material, the method comprising contacting the material with a composition comprising a polycarboxylic acid derived chelating agent; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof.

In another aspect, there is provided a method of colouring hair, the method comprising:

(a) contacting the hair with a colouring composition; and

(b) contacting the hair with a composition comprising a polycarboxylic acid derived chelating agent; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof and wherein step (b) is carried out after step (a) or step (b) is carried out before step (a).

In yet another aspect there is provided the use of a polycarboxylic acid derived chelating agent to combat colour loss from dyed hair ; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof.

In a further aspect, there is provided a packaged hair colouring product comprising one or more compositions wherein the one or more compositions together comprise at least one dye compound and/or one dye precursor compound and a polycarboxylic acid chelating agentsagent; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof.

Detailed Description

According to a first aspect of the present invention there is provided a method of combatting colour loss from a dyed material, the method comprising contacting the material with a composition comprising a polycarboxylic acid derived chelating agent.

Claims

1. A method of combatting colour loss from a dyed material, the method comprising contacting the material with a composition comprising a polycarboxylic acid derived chelating agent; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof.

2. A method according to claim 1 wherein the material is a keratinous material.

3. A method according to claim 1 or claim 2 wherein the material is human hair or animal hair, preferably human hair.

4. A method according to claim 3 wherein the material is growing human hair or animal hair, preferably growing human hair.

5. A method according to any preceding claim which is carried out on a material that has been dyed.

6. A method according to any preceding claim wherein the composition contacted with the hair comprises two or more polycarboxylic acid derived chelating agents.

7. A method according to any preceding claim wherein the composition comprising a polycarboxylic acid derived chelating agent is selected from a shampoo composition, a conditioning composition, a hair styling composition, a hair permanent waving composition, a hair relaxing composition, a hair permanent straightening composition or a hair colouring composition.

8. A method or composition according to any preceding claim wherein the composition comprising the polycarboxylic acid derived chelating agent further comprises 1 to 30 wt% of one or more surfactants.

9. A method of colouring hair, the method comprising:

(a) contacting the hair with a colouring composition; and

(b) contacting the hair with a composition comprising a polycarboxylic acid derived chelating agent; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof and wherein step (b) is carried out after step (a) or step (b) is carried out before step (a).

10. A method or composition according to any preceding claim wherein the composition comprising the polycarboxylic acid derived chelating agent further comprises an aldehyde which is an alpha-substituted aldehyde and/or a hydroxy aldehyde.

11. A method or composition according to any preceding claim wherein the composition comprising the polycarboxylic acid derived chelating agent further comprises a succinimidyl ester.

12. A method or composition according to any preceding claim wherein the composition comprising the polycarboxylic acid derived chelating agent further comprises an amine salt of a carboxylic acid.

13. A method or composition according to any preceding claim wherein the composition comprising the polycarboxylic acid derived chelating agent further comprises a crosslinking agent comprising two or more maleic acid derived reactive moieties and a linker having two or more amino groups.

14. A method according to any preceding claim which provides a significant reduction in colour loss after 1 to 3 washes such that the colour is visibly more intense compared with hair treated by an equivalent method excluding the chelating agent.

15. A method according to any preceding claim which provides a reduction in colour loss of at least 10% after three washes compared with hair treated by an equivalent method excluding the chelating agent.

16. The use of a polycarboxylic acid derived chelating agent to combat colour loss from dyed hair ; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof.

17. The use according to claim 16 of two or more polycarboxylic acid derived chelating agents to combat colour loss from dyed hair.

18. A method or use according to any preceding claim which reduces colour loss by at least 20 %.

19. A packaged hair colouring product comprising one or more compositions wherein the one or more compositions together comprise at least one dye compound and/or one dye precursor compound and a polycarboxylic acid chelating agent; wherein the chelating agent is selected from glutamic acid N,N-diacetic acid (GLDA), diethylene triamine pentaacetic acid (DTPA) and mixtures thereof.

20. A method according to claim 1 wherein the dyed material is a textile material, preferably a textile material comprising wool.

21. A method according to claim 1 or claim 20 which combats colour loss resulting from washing a dyed textile material in a laundry washing process.