CLAIMS

What is claimed is:

1. A method for strengthening hair, the method comprising the steps of:

   a) applying to the hair a first formulation which comprising at least one bi-functional Brönsted-base of the general formula X-R-Y, wherein X and Y are independently selected from the groups of primary amino, carboxylate, nitrate, hydrogenphosphate, phosphate, sulfate and carbonate and R is an organic molecule group with 1 to 20 carbon atoms, and 0 to 5 oxygen atoms, and 0 to 5 nitrogen atoms and is not an aromatic or heteroaromatic compound, and X-R-Y has a molecular weight of less than 500 g/mol, wherein the concentration of the at least bi-functional Brönsted-base is 1 - 30 %; and

   b) applying to the hair a second formulation containing at least one bi-functional organic acid capable of reacting with the amine groups of the hair, wherein the concentration of the at least one bi-functional organic acid is 1 - 30%,

   characterized in that the first formulation has a pH of 7 to 12, and the second formulation has a pH of 1.5 to 7.

2. The method of claim 1, wherein the concentration of the at least one bi-functional Brönsted-base in (a) is 3-20 %, the concentration of the at least one bi-functional organic acid in step (b) is 3 - 20 % and the ratio of the at least one bi-functional organic acid to the at least one bi-functional Brönsted-base is of from 1:1 to 3:1.

3. The method of claim 1, wherein step (b) is performed prior to step (a).

4. The method of claim 1, wherein step (a) is performed prior to step (b).

5. The method of claim 1, wherein the at least one bi-functional organic acid of step (b) is selected from the group of oxalic, malonic, succinic, glutaric, adipic, pimeric, suberic, azelaic, sebacic, undecanedioic, dodecanedioic, methylmalonic,

methylsuccinic, 2-methylglutaric, aspartic, maleic, fumaric, itaconic, mesaconic, methylmaleic, phthalic, isophthalic, terephthalic, malic, ketomalonic, 4-ketopimelic, citric, isocitric, aconitic, propane-1,2,3-tricarboxylic, trimesic, methanetetracarboxylic, ethylenetetracarboxylic, meso-butane-1,2,3,4-tetracarboxylic, and furantetracarboxylic acid, and amide, ether, ester, amino, and acetyl derivatives thereof, and mixtures thereof.

6. The method of claim 1, wherein R is having 0 nitrogen atoms.

7. The method claim 1, wherein the hair is dried between steps (a) and (b), and the drying time is 1 to 60 minutes or wherein there is a waiting time between the applications of step (a) and (b) or (b) and (a) of 1 to 60 minutes.

8. The method of claim 5, wherein the at least one bi-functional organic acid of step (b) is selected from the group of oxalic, malonic, succinic, glutaric, adipic, pimeric, suberic, azelaic, sebacic, undecanedioic, dodecanedioic, methylmalonic, methylsuccinic, 2-methylglutaric, aspartic, maleic, fumaric, itaconic, mesaconic, methylmaleic, phthalic, isophthalic, terephthalic, malic, ketomalonic, 4-ketopimelic, citric, isocitric, aconitic, propane-1,2,3-tricarboxylic, trimesic, methanetetracarboxylic, ethylenetetracarboxylic, meso-butane-1,2,3,4-tetracarboxylic, and furantetracarboxylic acid, and mixtures thereof.

9. The method of claim 1, wherein the formulation of step (b) is left on the hair for 1 to 45 minutes and wherein the second formulation of step (b) is left on the hair for 1 to 45 minutes.

10. The method of claim 8, wherein the at least one bi-functional organic acid of step (b) is maleic, aconitic, furmaric, itaconic, mesaconic, methylmaleic, phthalic, isophthalic, terephthalic, malic, ketomalonic or 4-ketopimelic acid, or mixtures thereof.

11. The method of claim 1, wherein the formulations of steps (a) and (b) are independently mixed into a cosmetically acceptable carrier and where the cosmetically acceptable carrier of the formula of step (a) is either identical or not to the cosmetically acceptable carrier of the formula of step (b).

12. The method of claim 1, wherein the formulation of step (a) is mixed into a commercially available hair colouring or hair bleaching formulation prior to the application to the hair.

13. The method of claim 1, wherein prior to the step (a), the hair is treated with a thioglycolic acid containing a hair care composition.

14. Kit for the strengthening of hairs containing at least two separate formulations, wherein the first formulation contains at least one bifunctional Brönsted-base of the general formula X-R-Y, wherein X and Y are independently selected from the groups of primary amino, carboxylate, nitrate, hydrogenphosphate, phosphate, sulfate, carbonate and R is an organic molecule group with 1 - 20 carbon atoms, 0 to 5 oxygen atoms and 0 to 5 nitrogen atoms and is not an aromatic or heteroaromatic compound, neither substituted nor unsubstituted and X-R-Y has a molecular weight below 500 g/mol, wherein the concentration of the at least one bi-functional Brönsted-base is 1 - 30 % and wherein the second formulation contains at least one bifunctional organic acid capable of reacting with the amine groups of the hair, wherein the concentration of the at least one bi-functional organic acid is 1 - 30% and wherein the first formulation has a pH-value of 7 to 12 and the second formulation has a pH-value of 1.5 to 7.

15. Kit for the strengthening of hairs according to claim 14, wherein the kit further comprises a hair-conditioner.

16. Kit for the strengthening of hairs according to claim 14, wherein the concentration of the at least one bifunctional Brönsted-base in the first formulation is 3-20 %, the concentration of the at least one bi-functional organic acid in step (b) is

3 - 20 % and the ratio of the at least one bi-functional organic acid to the at least one bi-functional Brönsted-base is of from 1:1 to 3:1.

17. Kit for the strengthening of hairs according to claim 14, wherein the first composition comprises a crosslinking agent selected from the group consisting of 4,7,10-Trioxa-1,13-tridecanediamine, 4,9-Dioxa-1,12-dodecanediamine and 1,11-Diamino-3,6,9-trioxaundecane.

18. Kit for the strengthening of hairs according to claim 14, wherein the at least one bifunctional organic acid of the second formulation has been selected from the group of oxalic, malonic, succinic, glutaric, adipinic, pimelic, suberic, azelainic, sebacic, undecandioic, dodecandioic, methylmalonic, methylsuccinic, 2-methylglutaric, aspartic, maleic, fumaric, itaconic, mesaconic, methylmaleic, phthalic, isophthalic, terephthalic, malic, ketomalonic, 4-ketopimelic, citric, isocitric, aconitic, propan-1,2,3-tricarboxylic, trimesic, methantetracarboxylic, ethylenetetracarboxylic, meso-butane-1,2,3,4-tetracarboxylic, furantetracarboxyic acid, and amide, ether, ester, amino, and acetyl derivatives thereof, and mixtures thereof.

19. Kit for the strengthening of hairs according to claim 14, wherein the first and the second formulations further contain at least a viscosity-modifying agent, and has a viscosity of from about 0.1 mPa·s to about 1,000,000 mPa·s at 25 °C .

20. Kit for the strengthening of hairs according to claim 14, wherein the first and the second formulations further contain at least one emulsifier and/or a surfactant.

21. Kit for the strengthening of hairs according to claim 14, wherein the first and the second formulation further contain at least one particulate material.

22. Kit for the strengthening of hairs according to claim 14, wherein the first and the second formulation further contain at least one preservative.

23. Kit for the strengthening of hairs according to claim 14, wherein the first and the second formulations independent of each other are mixed into cosmetic acceptable substrates and wherein the cosmetic acceptable substrate of the first formulation is either identical or different from the cosmetic acceptable substrate of the second formulation.