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(54) Title: HAIR CONDITIONING COMPOSITION COMPRISING BENZYL ALCOHOL AS PRESERVATIVE

(57) Abstract: Conditioning composition comprising from 0.4 to 8% wt. fatty alcohol having from 8-22 carbons, from 0.1 to 2% wt. cationic surfactant component, water, and wherein the composition has a Draw Mass of from 1 to 250g, characterised by from 0.001 to 0.5% wt. benzyl alcohol.



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HAIR CONDITIONING COMPOSITION COMPRISING BENZYL ALCOHOL AS
PRESERVATIVE

The present invention relates to a conditioning composition comprising superior conditioning capability.

5 Despite the prior art there remains a need for improved conditioning compositions.

We have surprisingly found that hair conditioning compositions having a delicate microstructure cannot be preserved by the usual range of preservatives and that careful consideration of the preservatives is required.

Further, where such compositions comprise silicones of high molecular weight, we have
10 surprisingly found that compositions of the invention can be made using standard manufacturing facilities without fouling of the machines.

Accordingly, the present invention provides a conditioning composition according to claim 1, 2, 3, 4 or 5.

The present invention will now be described, by way of example, with reference to the
15 accompanying drawings, in which;

Figure 1 is a photograph of hair switches positioned on hair brushes to measure draw mass, and

Figure 2 is a photograph of a weight attached to a hair switch to measure draw mass.

Draw Mass is the mass required to draw a control hair switch through a comb or brush.
20 Thus the more tangled the hair the greater the mass required to pull the switch through the comb or brush.

Benzyl alcohol is preferably present at from 0.05 to 0.3 and most preferably from 0.1 to 0.25% by wt. of the composition.

Preferably, the composition comprises a conditioning gel phase obtainable by:
25

forming a 'comelt' in a first vessel comprising fatty alcohol and cationic component and 0-15% wt. comelt of water (A);

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adding the 'comelt' to a second vessel containing water at 50-60°C (B); and

5 mixing, wherein the temperature of the mixture of the comelt and the water in the second vessel (B) is controlled such that it is maintained from 56-65°C, preferably from 58-62°C, more preferably 60°C, wherein the fatty alcohol has from 8 to 22 carbons and wherein the cationic component comprises from 0-70% wt. cationic component, cationic surfactants have the formula $N^+R^1R^2R^3R^4$, more preferably from 30-60% wt. cationic surfactant component, and wherein R^1 , R^2 , R^3 and R^4 are independently (C_1 to C_{30}) alkyl or benzyl.

10 The comelting of the fatty alcohol and the cationic surfactant forms an isotropic phase. This means that the development of structure, i.e. the formation of the lamellar conditioning gel phase, can be controlled by the temperature and rate of mixing of the comelt and the water. The conditioning composition ultimately made

15 using such conditioning gel phase has superior conditioning capability which is demonstrated by the reduced Detangling Draw.

The conditioning compositions made using a conditioning gel phase of the invention are superior products to those made mixing the water, fatty alcohol and cationic surfactant at
20 around 70C. Specifically, the superiority manifests itself in superior next day conditioning benefits where one would expect superior conditioning benefits to be due to increased deposition of solids thus leaving the hair lank and greasy the following day.

The improvement thus resides in the balance of thermal energy at the point of mixing the
25 water with the comelt.

If the water is too cold then the comelt solidifies resulting in a poorly mixed system and this ultimately provides a composition of low viscosity. If the temperature of the water is too high then it is also too high at the point of mixing with the comelt and so forms
30 vesicles. This also gives rise to lower viscosity in the conditioning composition formed with the resulting conditioning gel phase.

Preferably, the water in the second vessel is maintained at 56-60°C and more preferably at 57-59°C.

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Preferably, the comelt comprises from 45-90% wt. comelt fatty alcohol.

5 Preferably, the fatty alcohol comprises from 8 to 22 carbon atoms, more preferably 16 to 22. Fatty alcohols are typically compounds containing straight chain alkyl groups. Examples of suitable fatty alcohols include cetyl alcohol, stearyl alcohol and mixtures thereof. The use of these materials is particularly preferable.

10 The level of fatty alcohol in the conditioner of the invention (not just the conditioning gel phase) will generally range from 0.01 to 10%, preferably from 0.1 % to 8%, more preferably from 0.2 % to 7 %, most preferably from 0.3 % to 6 % by weight of the composition. The weight ratio of cationic surfactant to fatty alcohol is suitably from 1:1 to 1:10, preferably from 1:1.5 to 1:8, optimally from 1:2 to 1:5. If the weight ratio of cationic surfactant to fatty alcohol is too high, this can lead to eye irritancy from the composition. If
15 it is too low, it can make the hair feel squeaky for some consumers.

Preferably, the comelt comprises from 10-40% wt. of the comelt cationic component.

20 In a most preferred embodiment the conditioning composition is made by first preparing a conditioning gel phase which is formed by adding cationic surfactants to fatty alcohol and stir at 85°C.

25 Gradually add this mixture to water, containing other ingredients, typically at 55°C, but at a temperature tailored to the composition to ensure mixture temperature is 60°C, this temperature maintained by external heating if required, and stir.

Cool this towards ambient by adding more water, and other ambient temperature ingredients, and use of external cooling if required, and stir.

Remaining components to the conditioning composition may then be added.

30 In an alternative embodiment the conditioning composition of the invention is obtainable by first forming a conditioning gel phase by:

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forming a 'comelt' in a first vessel comprising fatty alcohol and cationic component and 0-15% wt. comelt water independently adding the 'comelt' and water to a mixing vessel mixing, wherein the temperature of the mixture of the 'comelt' and

5 the water is maintained at from 56-65°C, preferably from 58-62°C, more preferably 60°C when in the mixing vessel, wherein the fatty alcohol comprises from 8 to 22 carbons, wherein the cationic component comprises from 0-70% cationic component, cationic surfactants have the formula $N^+R^1R^2R^3R^4$, more preferably from 30-60% wt. cationic surfactant component, and wherein R^1 , R^2 , R^3 and R^4 are independently (C_1 to C_{30}) alkyl
10 or benzyl.

Conditioning compositions made using the conditioning gel phase of the invention are superior conditioning products. Specifically, they are thicker, despite having lower solids levels, and they are rinsed more easily. Products which are rinsed more easily use less
15 water and so provide for a more sustainable future. These products are considered desirable by the environmentally aware consumer.

Preferably, the process is a continuous process.

20 The comelt of the invention forms an isotropic phase which means the development of structure, i.e. the formation of the lamellar conditioning gel phase, can be controlled. In this process the temperature of the mixture of comelt and water is controlled by modifying the temperature of water added to the mix. Water may be added in one go or it may be staged. Typically, a first water vessel is maintained at around 40°C
25 and is pumped into the mixing vessel while a second water vessel is maintained at a sufficient temperature to modify the temperature of the mixture of water with comelt such that it falls within the required range, i.e. from 56-65°C, preferably from 58-62°C, more preferably 60°C in the mixing vessel.

30 The conditioning composition ultimately made using such conditioning gel phase exhibits improved conditioning characteristics which are not observed when the conditioning gel phase is formed in the comelt.

- 5 -

The improvement thus resides in the balance of thermal energy at the point of mixing the water with the comelt.

5 If too cold then one ends up with a poorly mixed system due to the tendency for the comelt to solidify and this ultimately provides a composition of low viscosity. If the temperature of the mix vesicles form. This also gives rise to lower viscosity in the conditioning composition formed in the long run.

Preferably, the comelt comprises from 45-90% wt. comelt fatty alcohol.

10

Preferably, the fatty alcohol comprises from 8 to 22 carbon atoms, more preferably 16 to 22. Fatty alcohols are typically compounds containing straight chain alkyl groups. Examples of suitable fatty alcohols include cetyl alcohol, stearyl alcohol and mixtures thereof. The use of these materials is particularly preferable.

15

The level of fatty alcohol in the conditioner of the invention (not just the conditioning gel phase) will generally range from 0.01 to 10%, preferably from 0.1% to 8%, more preferably from 0.2 % to 7 %, most preferably from 0.3 % to 6 % by weight of the composition. The weight ratio of cationic surfactant to fatty alcohol is suitably from 1:1 to 20 1:10, preferably from 1:1.5 to 1:8, optimally from 1:2 to 1:5. If the weight ratio of cationic surfactant to fatty alcohol is too high, this can lead to eye irritancy from the composition. If it is too low, it can make the hair feel squeaky for some consumers.

Preferably, the comelt comprises from 10-40% wt. of the comelt cationic surfactant.

25

In an alternative embodiment the composition comprises a conditioning gel phase obtainable by:

forming an aqueous isotropic solution of cationic component ;

30

mixing the aqueous isotropic solution of cationic surfactant with molten fatty alcohol,

wherein the temperature during mixing the fatty alcohol with the isotropic cationic

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surfactant solution is maintained from 55°C to 65°C and wherein the fatty alcohol has from 8 to 22 carbons.

A conditioning composition made using a conditioning gel phase of the invention has been shown to be superior to compositions made by standard processes where the materials are mixed in water at around 70°C. The superior conditioning manifests itself in superior conditioner thickness (despite having lower solids levels) and next day clean feel and conditioning benefits. These are surprising since it would be expected that superior conditioning products usually leave the hair lank and greasy the following day due to excessive deposition of solids.

10

Preferably, the temperature of the mixture of the aqueous isotropic solution and fatty alcohol is maintained at from 55°C to 65°C.

15

Preferably, the molten fatty alcohol is added to the aqueous isotropic solution of cationic surfactant.

20

In this process the temperature of the mixture is controlled by modifying the temperature/rate of the mixture of the fatty alcohol and the cationic surfactant solution. The temperature needs to be carefully controlled in order to achieve the right conditioning gel phase structure. The improvement thus resides in the balance of thermal energy at the point of mixing the fatty alcohol with the isotropic mixture.

25

After formation of the gel phase further water and additional ingredients may be added in one go or it may be staged. Preferably the gel phase is cooled prior to addition of the water.

The conditioning composition ultimately made using such conditioning gel phase has improved conditioning capabilities.

30

Preferably, the temperature of the mixture of the fatty alcohol and aqueous isotropic solution is maintained at from 58°C to 62°C; most preferably at 60°C.

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Preferably, and prior to addition to the isotropic mixture, the fatty alcohol is maintained at a temperature sufficient to maintain the fatty alcohol in a liquid phase. Preferably the fatty alcohol is maintained at from 80°C to 85°C.

- 5 Preferably, the resulting conditioning gel phase is mixed with a mixer having a rotor tip speed of 10-34, preferably from 21-27 and especially preferably 24 ms⁻¹.

Preferably, the fatty alcohol comprises from 8 to 22 carbon atoms, more preferably 16 to 22. Fatty alcohols are typically compounds containing straight chain alkyl groups.

- 10 Examples of preferred fatty alcohols include cetyl alcohol, stearyl alcohol and mixtures thereof.

The level of fatty alcohol in the conditioner of the invention (not just the conditioning gel phase) will generally range from 0.01 to 10%, preferably from

- 15 0.1 % to 8%, more preferably from 0.2 % to 7 %, most preferably from 0.3 % to 6% by weight of the composition. The weight ratio of cationic surfactant to fatty alcohol is suitably from 1:1 to 1:10, preferably from 1:1.5 to 1:8, optimally from 1:2 to 1:5. If the weight ratio of cationic surfactant to fatty alcohol is too high, this can lead to eye irritancy from the composition. If it is too low, it can make the hair feel squeaky for
20 some consumers.

Gradually add molten (85°C) fatty alcohol to this mixture, maintain temperature at 60°C by use of external heating or cooling, and stir.

- 25 Cool this towards ambient by adding more water, and other ambient temperature ingredients, and use of external cooling if required, and stir.

Further conditioning composition ingredients are added as necessary to form the conditioning composition.

30

In an alternative embodiment the conditioning composition comprises a conditioning gel phase obtainable by forming an aqueous dispersion of fatty alcohol and amidoamine;

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adding a cationic surfactant to the aqueous dispersion and mixing; and

neutralising the amidoamine,

- 5 wherein the temperature of the mixture of cationic surfactant in the aqueous dispersion is maintained at from 56°C to 67°C.

Conditioning compositions made with the conditioning gel phase of the invention have improved conditioning performance. More specifically, the conditioning compositions
10 made using the conditioning gel phase of the invention are thicker, even when using a lower level of solids, and provide improved clean feel the following day. This is surprising since one usually associates improved conditioning with increased deposition of solids which results on greasiness and heaviness the next day. To provide the opposite is an unmet consumer need.

15

Preferably, the temperature of the aqueous dispersion is maintained above the melting temperature of the fatty alcohol, preferably at least 5°C higher than the melting point of the fatty alcohol.

- 20 Preferably, the aqueous dispersion is formed by adding fatty alcohol to water heated and maintained at least the melting point of the fatty alcohol and preferably at least 5°C above the melting point of the fatty alcohol. Preferably, the aqueous dispersion is maintained at a melting point sufficient to maintain the fatty alcohol in a liquid phase.

25

Preferably, the temperature of the mixture of the aqueous dispersion is controlled such that it is maintained from 56-67°C, preferably from 58-65°C, more preferably 63°C.

- 30 Preferably, the temperature of the mixture of the aqueous dispersion and the cationic surfactant is maintained at from 56°C to 67°C. More preferably, the temperature of the mix of the aqueous dispersion and the cationic surfactant is maintained at from 58°C to 65°C; most preferably at 63°C.

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Controlling the temperature of the mixture of fatty alcohol and the cationic surfactant means controlling the formation of gel structure. In this process the temperature of the mixture of comelt and water is controlled by modifying the temperature/rate of the cationic surfactant to the fatty alcohol and an amidoamine surfactant aqueous mix. If too cold or too hot then a system having a mixture of structures results and this has poorer conditioning capability.

After formation of the gel phase further water and additional ingredients may be added in one go or it may be staged.

10 Preferably, the process is a batch process.

Preferably the mixing of the cationic surfactant with the aqueous dispersion is monitored by measurement of viscosity, such that when the viscosity change plateaus, the required degree association has occurred and then the amidoamine is neutralised. Typically, this mixing of the cationic surfactant and aqueous dispersion takes from 20 to 60 minutes.

The conditioning composition ultimately made using such conditioning gel phase has improved conditioning performance compared with an identical conditioning composition made with an identical formulation made using a standard process.

20 Preferably, the process comprises passing the contents of the mixture vessel through a mixer with rotor tip speed of 10-34, preferably from 21-27 and especially preferably 24 ms⁻¹.

25 Preferably the aqueous dispersion comprises from 25 wt.% to 50 wt.%, more preferably from 35 to 45 wt.% of the total dispersion water.

30 Preferably the aqueous dispersion comprises from 4 to 20 wt.% of the total dispersion fatty alcohol.

Preferably the aqueous dispersion comprises from 1 to 5 wt.% of the total dispersion amidoamine.

- 10 -

Preferably the neutraliser added to the aqueous dispersion and cationic surfactant comprises sufficient neutraliser to neutralise at least 90 wt% of the cationic surfactant, more preferably at least 95 % of the cationic surfactant, most preferably at least 99 % of the cationic surfactant.

5

Preferably, the fatty alcohol comprises from 8 to 22 carbon atoms, more preferably 16 to 22. Fatty alcohols are typically compounds containing straight chain alkyl groups. Examples of suitable fatty alcohols include cetyl alcohol, stearyl alcohol and mixtures thereof. The use of these materials is particularly preferable.

10

The level of fatty alcohol in the conditioner of the invention (not just the conditioning gel phase) will generally range from 0.01 to 10%, preferably from 0.1 % to 8%, more preferably from 0.2 % to 7 %, most preferably from 0.3 % to 6% by weight of the composition. The weight ratio of cationic surfactant to fatty alcohol is suitably from 1:1 to 15 1:10, preferably from 1:1.5 to 1:8, optimally from 1:2 to 1:5. If the weight ratio of cationic surfactant to fatty alcohol is too high, this can lead to eye irritancy from the composition. If it is too low, it can make the hair feel squeaky for some consumers.

20

Preferably, the conditioning gel phase is obtainable by adding a stearylamidopropyl dimethylamine and fatty alcohol to water at 60°C, maintain temperature by use of external heating, and stir.

25

Add a cationic surfactant, typically behentrimonium chloride, to this mixture, maintain temperature at 60°C by use of external heating or cooling, and stir.

Add lactic acid to protonate stearylamidopropyl dimethylamine, maintain temperature at 60°C by use of external heating or cooling, and stir.

30

Cool this towards ambient by adding more water, and other ambient temperature ingredients, and use of external cooling if required, and stir.

Further ingredients are then added to form a conditioning composition.

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Suitable conditioning surfactants include those selected from cationic surfactants, used singly or in admixture. Preferably, the cationic surfactants have the formula $N^+R^1R^2R^3R^4$ wherein R^1 , R^2 , R^3 and R^4 are independently (C_1 to C_{30}) alkyl or benzyl. Preferably, one, two or three of R^1 , R^2 , R^3 and R^4 are independently

5 (C_4 to C_{30}) alkyl and the other R^1 , R^2 , R^3 and R^4 group or groups are (C_1 - C_6) alkyl or benzyl. More preferably, one or two of R^1 , R^2 , R^3 and R^4 are independently (C_6 to C_{30}) alkyl and the other R^1 , R^2 , R^3 and R^4 groups are (C_1 - C_6) alkyl or benzyl groups. Optionally, the alkyl groups may comprise one or more ester (-OCO- or -COO-) and/or ether (-O-) linkages within the alkyl chain. Alkyl groups may
10 optionally be substituted with one or more hydroxyl groups. Alkyl groups may be straight chain or branched and, for alkyl groups having 3 or more carbon atoms, cyclic. The alkyl groups may be saturated or may contain one or more carbon-carbon double bonds (eg, oleyl). Alkyl groups are optionally ethoxylated on the alkyl chain with one or more ethyleneoxy groups.

15

Suitable cationic surfactants for use in the invention include cetyltrimethylammonium chloride, behenyltrimethylammonium chloride, cetylpyridinium chloride, tetramethylammonium chloride, tetraethylammonium chloride, octyltrimethylammonium chloride, dodecyltrimethylammonium chloride,

20

hexadecyltrimethylammonium chloride, octyldimethylbenzylammonium chloride, decyldimethylbenzylammonium chloride, stearyldimethylbenzylammonium chloride, didodecyldimethylammonium chloride, dioctadecyldimethylammonium chloride, tallowtrimethylammonium chloride, dihydrogenated tallow dimethyl ammonium chloride

25

(eg, Arquad 2HT/75 from Akzo Nobel), cocotrimethylammonium chloride, PEG-2-oleammonium chloride and the corresponding hydroxides thereof. Further suitable cationic surfactants include those materials having the CTFA designations Quaternium-5, Quaternium-31 and Quaternium-18. Mixtures of any of the foregoing materials may also be suitable. A particularly useful cationic surfactant for use in conditioners according to
30 the invention is cetyltrimethylammonium chloride, available commercially, for example as GENAMIN CTAC, ex Hoechst Celanese. Another particularly useful cationic surfactant for use in conditioners according to the invention is behenyltrimethylammonium chloride, available commercially, for example as GENAMIN KDMP, ex Clariant.

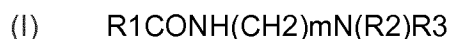
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Preferably, the cationic surfactant component of the comelt comprises from 0-70% cationic component, cationic surfactants have the formula $N^+R^1R^2R^3R^4$ as described above, more preferably from 30-60% wt. cationic surfactant component.

5 Another example of a class of suitable cationic surfactants for use in the invention, either alone or together with one or more other cationic surfactants, is a combination of (i) and (ii) below:

(i) an amidoamine corresponding to the general formula (I):

10



15 in which R^1 is a hydrocarbyl chain having 10 or more carbon atoms, R^2 and R^3 are independently selected from hydrocarbyl chains of from 1 to 10 carbon atoms, and m is an integer from 1 to about 10; and

(ii) an acid.

20 As used herein, the term hydrocarbyl chain means an alkyl or alkenyl chain.

Preferred amidoamine compounds are those corresponding to formula (I) in which

25 R^1 is a hydrocarbyl residue having from about 11 to about 24 carbon atoms,

R^2 and R^3 are each independently hydrocarbyl residues, preferably alkyl groups, having from 1 to about 4 carbon atoms, and m is an integer from 1 to about 4.

Preferably, R^2 and R^3 are methyl or ethyl groups.

30

Preferably, m is 2 or 3, i.e. an ethylene or propylene group.

Preferred amidoamines useful herein include stearamido-propyldimethylamine, stearamidopropyldiethylamine, stearamidoethyldiethylamine,

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stearamidoethyl dimethylamine, palmitamidopropyl dimethylamine, palmitamidopropyl diethylamine, palmitamidoethyl diethylamine, palmitamidoethyl dimethylamine, behenamido propyl dimethylamine, behenamido propyl diethylamine, behenamidoethyl diethylamine, behenamidoethyl dimethylamine, arachidamidopropyl dimethylamine, arachidamidopropyl diethylamine, arachid-amidoethyl diethylamine, arachidamidoethyl dimethylamine, and mixtures thereof.

10 Particularly preferred amidoamines useful herein are stearamidopropyl dimethylamine, stearamidoethyl diethylamine, and mixtures thereof.

Commercially available amidoamines useful herein include:

15 stearamidopropyl dimethylamine with tradenames LEXAMINE S-13 available from Inolex (Philadelphia Pennsylvania, USA) and AMIDOAMINE MSP available from Nikko (Tokyo, Japan), stearamidoethyl diethylamine with a tradename AMIDOAMINE S available from Nikko, behenamido propyl dimethylamine with a tradename INCROMINE BB available from Croda (North Humber side, England), and various amidoamines with tradenames SCHERCODINE series available from Scher (Clifton New Jersey, USA).

20

Acid may be any organic or mineral acid which is capable of protonating the amidoamine in the conditioner composition. Suitable acids useful herein include hydrochloric acid, acetic acid, tartaric acid, fumaric acid, lactic acid, malic acid, succinic acid, and mixtures thereof. Preferably, the acid is selected from the group consisting of acetic acid, tartaric acid, hydrochloric acid, fumaric acid, lactic acid and mixtures thereof.

25

The primary role of the acid is to protonate the amidoamine in the hair treatment composition thus forming a tertiary amine salt (TAS) in situ in the hair treatment composition. The TAS in effect is a non-permanent quaternary ammonium or pseudo-quaternary ammonium cationic surfactant.

30

Suitably, the acid is included in a sufficient amount to protonate more than 95 mole% (293 K) of the amidoamine present.

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Should an amidoamine of the type described herein be present then the corresponding acid component will not be present in the comelt. Instead it will be present in the water. Preferably, the water comprises protonating component at from 0.01 to 3% wt.

5 Accordingly, where the invention requires from 10-40% wt. comelt cationic surfactant, the cationic surfactant component may comprise amidoamine which is not protonated, i.e. it will not be cationic charged but will become protonated when added to the water and hence the protonating material contained therein.

10 Preferably, the cationic surfactant component of the comelt comprises from 0-70% cationic component, amidoamine corresponding to formula (I), more preferably from 30-60% wt. cationic surfactant component.

In conditioning compositions of the invention (not merely the conditioning gel phase), the
15 level of cationic surfactant will generally range from 0.01 % to 10%, more preferably 0.05 % to 7.5%, most preferably 0.1 % to 5% by weight of the composition.

Preferably, where a comelt is used, the comelt is maintained at a melting point sufficient to maintain the fatty alcohol in a liquid phase. Preferably, the comelt is maintained at
20 from 80-85C.

Preferably, the temperature of the mixture of the comelt and the water is controlled such that it is maintained from 56-65C, prefer from 58-62C, more preferably 60C during mixing.

25 Preferably, the contents of the mixture vessel passed through a mixer with rotor tip speed of 10-34, preferably from 21-27 and especially preferably 24 ms⁻¹.

In a further aspect there is provided a process for manufacturing a conditioning
30 composition by forming a conditioning gel phase obtained as described above and then adding any remaining ingredients. Typical remaining ingredients include fragrances, silicones, fibre actives or other benefit agents.

- 15 -

Preferably, the conditioning composition is passed through a mixer with rotor tip speed of 10-34, preferably from 21-27 and especially preferably 24 ms⁻¹ one more time after the remaining ingredients have been added.

- 5 Conditioning compositions of the invention or using conditioning gel phases of the invention also deposit silicone better than conventionally made conditioning compositions.

Accordingly, the compositions of the invention can contain, emulsified droplets of a silicone conditioning agent, for enhancing conditioning performance.

10

Suitable silicones include polydiorganosiloxanes, in particular polydimethylsiloxanes which have the CTFA designation dimethicone. Also suitable for use compositions of the invention (particularly shampoos and conditioners) are polydimethyl siloxanes having hydroxyl end groups, which have the CTFA designation dimethiconol. Also suitable for
15 use in compositions of the invention are silicone gums having a slight degree of cross-linking, as are described for example in WO 96/31188.

20

The viscosity of the emulsified silicone itself (not the emulsion or the final hair conditioning composition) is typically at least 10,000 cst at 25°C the viscosity of the silicone itself is preferably at least 60,000 cst, most preferably at least

500,000 cst, ideally at least 1,000,000 cst. Preferably the viscosity does not exceed 10⁹ cst for ease of formulation.

25

Preferably, the composition of the invention comprises a silicone component which comprises a silicone gum, an emulsifier therefore and, optionally a further silicone.

Preferably, the silicone gum has a viscosity of from 300,000 cst to 3 million cst. As measured at 25°C with a Brookfield condition set 164, 3rpm LVT LV spindle 3 @ 25°C.

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Preferably, the emulsifier for the silicone gum is a cationic or non-ionic surfactant.

Preferably, the further silicone comprises an amino silicone.

5

Preferably, the silicone component comprises from 0.1 to 50% wt. emulsifier and water, and from 50 to 99.9% wt. silicone gum and optional silicone.

10 Preferably, the silicone gum and further silicone are present in the silicone component at from 1:20 to 1:1 by weight.

The most preferred silicone component is commercially available from Dow Corning as DC7134. Such silicones are described fully in European patent application 02737882.7

15 Emulsified silicones for use in the shampoo compositions of the invention will typically have an average silicone droplet size in the composition of less than 30, preferably less than 20, more preferably less than 10 micron, ideally from 0.01 to 1 micron. Silicone emulsions having an average silicone droplet size of 0.15 micron are generally termed microemulsions.

20

Emulsified silicones for use in the conditioner compositions of the invention will typically have an size in the composition of less than 30, preferably less than 20, more preferably less than 15. Preferably the average silicone droplet is greater than 0.5 micron, more preferably greater than 1 micron, ideally from 2 to 8 micron.

25

Silicone particle size may be measured by means of a laser light scattering technique, for example using a 2600D Particle Sizer from Malvern Instruments.

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5 Examples of suitable pre-formed emulsions include Xiameter MEM 1785 and microemulsion DC2-1865 available from Dow Corning. These are emulsions /microemulsions of dimethiconol. Cross-linked silicone gums are also available in a pre-emulsified form, which is advantageous for ease of formulation.

10 A further preferred class of silicones for inclusion in shampoos and conditioners of the invention are amino functional silicones. By "amino functional silicone" is meant a silicone containing at least one primary, secondary or tertiary amine group, or a quaternary ammonium group. Examples of suitable amino functional silicones include: polysiloxanes having the CTFA designation "amodimethicone".

15 Specific examples of amino functional silicones suitable for use in the invention are the aminosilicone oils DC2-8220, DC2-8166 and DC2-8566 (all ex Dow Corning).

Suitable quaternary silicone polymers are described in EP-A-0 530 974. A preferred quaternary silicone polymer is K3474, ex Goldschmidt.

20 Also suitable are emulsions of amino functional silicone oils with non ionic and/or cationic surfactant.

25 Pre-formed emulsions of amino functional silicone are also available from suppliers of silicone oils such as Dow Corning and General Electric. Specific examples include DC939 Cationic Emulsion and the non-ionic emulsions DC2-7224, DC2-8467, DC2-8177 and DC2-8154 (all ex Dow Corning).

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The total amount of silicone is preferably from 0.01 wt% to 10 %wt of the total composition more preferably from 0.1 wt% to 5 wt%, most preferably 0.5 wt% to 3 wt% is a suitable level.

EXAMPLE 1

5 Conditioner compositions:

The formulation was made by processes as described above.

	Inventive
INCI Name (CTFA)	%(W/W)
Cetearyl Alcohol	3.1500
<u>Dimethicone and Amodimethicone and PEG-7 Propylheptyl Ether and Cetrimonium Chloride</u>	4.2900
Behentrimonium Chloride	1.3700
Glycerin	1.0000
Perfume	0.5000
Stearamidopropyl Dimethylamine	0.3200
Lactic Acid	0.1000
Disodium EDTA	0.1000
Benzyl Alcohol	0.100
Vegetable Oil	0.0100
Dye	0.00013
Ammonium Hydroxide	0.02000
Chlorinated water	up to 100.00

EXAMPLE 2

Table 1 shows a range of different conditioning gel phases used in a hair conditioning composition according to the invention.

5 Table 1.

	A	B	C	D
Behentrimonium Chloride	0.525	0.7	0.958	1.6
Stearamidopropyldimethyl amine	0.75	1	0.319	
Lactic acid	0.2112	0.282	0.09	
Cetearyl Alcohol	3	4	3.145	3.2
Dimethicone+aminosilicone	1	2	3	3

Table 2 shows the effect of different levels of names preservatives on viscosity of a hair conditioning composition comprising different bases. The table also shows the effect on silicone fouling.

Table 2.

		Base A	Base B			
	% wt. preservative	Benzyl OH	Benzyl OH	Phenoxyethano I	Benzoic acid	Salicylic Acid
	0	247000	242000	242000	303000	381000
	0.2				224000	162000
	0.3	238000	248000		110000	206000
	0.4	229000	247000	167000		216000
	0.5	255000	180000	114000		
	0.6	218000	194000	80000		
	0.7	249000	168000	69200		
Si fouling			0.07%	0.11%	0.11%	10.70%

		Base C	Base D			
	%wt. preservative	Benzyl OH	Benzyl OH	Phenoxyethano l	benzoic acid	Salicylic Acid
	0	318000	386000	257000	351000	306000
	0.2				234000	245000
	0.3	294000	348000		184000	216000
	0.4	295000	336000	216000		210000
	0.5	287000	333000	167000		
	0.6	262000	302000	148000		
	0.7	322000	313000	96000		
Si fouling			0.19%	0.14%	0.07%	3.48%

The data shows clearly that the viscosity profile of a product comprising the condition gel phase as made using the methods described above is more stable in the presence of benzyl alcohol than it is in the presence of the other preservatives.

EXAMPLE 3

5g 10 inch (30cm) Virgin (not chemically damaged) Indian hair switches [industry standard hair type ex. International Hair Importers and Products, Glendale, NY] were base washed using 14% SLES, according to the base washing protocol.

Base washing protocol

All switch washing to be done using the flow/temperature controlled taps. The flow rate is set at 4 litres / minute and a temperature of 35°C - 40°C.

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1. Prep all of the syringes prior to starting to wash.
 - Pre-fill the syringe with the base wash and empty
 - Place the syringe on the balance and tare the balance
- 5 · Fill the syringe to the required mark and check on the balance that the correct amount for the two washes has been weighed out
 - Repeat for each switch

- 10 2. Turn on tap and leave to stabilise for 30 seconds. The temperature and flow control is used by turning on the hot tap fully. Once the tap is turned on it is advisable to leave it running until all of the switches being treated in the session are done.

- 15 3. Wet out the switch by running it under the tap, remove excess water by running the first and middle finger down the length of the switch.

4. Lay the switch down flat on the edge of the sink and apply half of the measured Base Wash* (0.1ml/g hair) evenly down the length of the switch.

- 20 5. Holding both ends of the switch. Gently massage the base wash into the hair for 30 seconds. *Make sure to keep hold of both ends of the switch to avoid overly tangling the fibres.*

- 25 6. Rinse for 30 seconds, running the fingers down the switch every 5 seconds. Remove excess water.

7. Apply the remainder of the Base Wash evenly down the length of the switch.

8. Gently massage the Base Wash into the hair for 30 seconds, again holding both ends of the switch to avoid excess tangling.
- 30 9. Rinse for 30 seconds, running the fingers down the switch every 10 seconds. Remove excess water.

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10. Lay the switch down on the edge of the sink and using the WIDE teeth of a Matador Sawcut No 4 comb; carefully comb the tangles out of the switch. *Comb down the switch from the root to the tip, starting at the tip and in sections work up slowly to the root.* Once all the tangles have been combed out finish with the NARROW teeth of the comb.

5

11. Run the first and middle finger down the switch and either dry at 50°C in the Drying Cabinet for a minimum of 2 hrs. Alternatively dry overnight at 20°C / 50% Relative Humidity.

10

Ingredient	Active(%)	INCI Name	Material Name	Formulation(%)
Primary Surfactant	70	Texapon N701	SLES-1EO	14.00
Water	100	Aqua	Water	To 100%
			pH range 5.5 – 6.5	

A 5g 10" hair switch has approx 7000 fibres.

The switches were then dried in 50°C drying cabinet for two hours.

Test protocol

The switches were then washed with the standard shampoo control formulation (see
 5 Table 1). The wash consisted of massaging in 0.1g shampoo per 1g of hair, for 30
 seconds, followed by a 30 second rinse (water flow rate 4 l/min), then repeating these two
 steps.

The switches were then tested for detangling benefit using various conditioner test
 formulations.

10 The conditioner was used at a concentration of 0.2g of hair conditioner per 1g of hair.
 This was massaged into the switch for 1 minute and then rinsed for 5 seconds (water flow
 rate 4 l/min). The wet switch was placed onto a brush with a bulldog clip fastened to the
 glued end of the switch. The switch was placed on the brush such that from 5cm to 20cm
 15 switches are positioned on two hair brushes, in preparation for the measurement of draw
 mass.

Weights were added to the glued end of the switch until the switch fell through the brush.
 The mass of the weight added to the switch when movement of the switch through the
 bristles of the brush is initiated is the draw mass. This situation is shown in Figure 2,
 20 where a 50g weight is attached to one end of a hair switch.

Table 1

Table 1 presents the shampoo control for assessing Detangling Draw. The shampoo is
 made by standard processes.

INCI Name (CTFA)	%(W/W)
Sodium Laureth Sulfate	18.571
Dimethiconol and Trideceth-10 and TEA-Dodecylbenzenesulfonate	5.240
Cocamidopropyl Betaine	3.000

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Perfume	0.750
Ethylene Glycol Distearate/Sodium Laureth Sulphate/Cocomonoethanol amide	9.302
Glycerin	0.500
Acrylates/Beheneth-25 Methacrylate Copolymer	1.000
Amodimethicone and cetrimonium chloride and trideceth-12	1.140
Guar Hydroxypropyltrimonium Chloride	0.225
Mica and Titanium Dioxide	0.150
Acrylates/Styrene Copolymer	0.500
Gluconolactone	0.100
Trehalose	0.100
Adipic Acid	0.100
Sodium Sulfate	0.100
Disodium EDTA	0.100
Guar Hydroxypropyltrimonium Chloride	0.075
PEG-45M	0.075
Preservative	0.100
Helianthus Annuus (Sunflower) Seed Oil	0.010
Preservative	0.060
Sodium Hydroxide	0.150
Citric Acid Monohydrate	0.15
Water	up to 100

CLAIMS

1. Conditioning composition comprising from 0.4 to 8% wt. fatty alcohol having from
5 8-22 carbons, from 0.1 to 2% wt. cationic surfactant component, water, and
wherein the composition has a Draw Mass of from 1 to 250g, characterised by
from 0.001 to 0.5% wt. benzyl alcohol.
2. Conditioning composition comprises a conditioning gel phase obtainable by:
10 forming a 'comelt' in a first vessel comprising fatty alcohol and cationic component
and 0-15% wt. comelt of water (A);
adding the 'comelt' to a second vessel containing water at 50-60°C (B); and
mixing,
15 wherein the temperature of the mixture of the comelt and the water in the second
vessel (B) is controlled such that it is maintained from 56-65°C, preferably from
58-62°C, more preferably 60°C, wherein the fatty alcohol has from 8 to 22 carbons
and wherein the cationic component comprises from 0-70% wt. cationic
component, cationic surfactants have the formula $N^+R^1R^2R^3R^4$, more preferably
20 from 30-60% wt. cationic surfactant component, and wherein R^1 , R^2 , R^3 and R^4
are independently (C_1 to C_{30}) alkyl or benzyl and from 0.001 to 0.5% wt. benzyl
alcohol.
3. Conditioning composition comprising a conditioning gel phase obtainable by:
25 forming a 'comelt' in a first vessel comprising fatty alcohol and cationic component
and 0-15% wt. comelt water

independently adding the 'comelt' and water to a mixing vessel

5

mixing,

wherein the temperature of the mixture of the 'comelt' and the water is maintained at from 56-65°C, preferably from 58-62°C, more preferably 60°C when in the mixing vessel, wherein the fatty alcohol comprises from 8 to 22 carbons, wherein the cationic component comprises from 0-70% cationic component, cationic surfactants have the formula $N^+R^1R^2R^3R^4$, more preferably from 30-60% wt. cationic surfactant component, and wherein R^1 , R^2 , R^3 and R^4 are independently (C_1 to C_{30}) alkyl or benzyl from 0.001 to 0.5% wt. benzyl alcohol.

15

4. Conditioning composition comprising a conditioning gel phase obtainable by:

forming an aqueous isotropic solution of cationic component ;

20

mixing the aqueous isotropic solution of cationic surfactant with molten fatty alcohol

wherein the temperature during mixing the fatty alcohol with the isotropic cationic surfactant solution is maintained from 55°C to 65°C and wherein the fatty alcohol has from 8 to 22 carbons from 0.001 to 0.5% wt. benzyl alcohol.

25

5. Conditioning composition comprising a conditioning gel phase obtainable by:

forming an aqueous dispersion of fatty alcohol and amidoamine;

30

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adding a cationic surfactant to the aqueous dispersion and mixing; and

5 neutralising the amidoamine,

wherein the temperature of the mixture of cationic surfactant in the aqueous dispersion is maintained at from 56°C to 67°C from 0.001 to 0.5% wt. benzyl alcohol.

10

Fig. 1

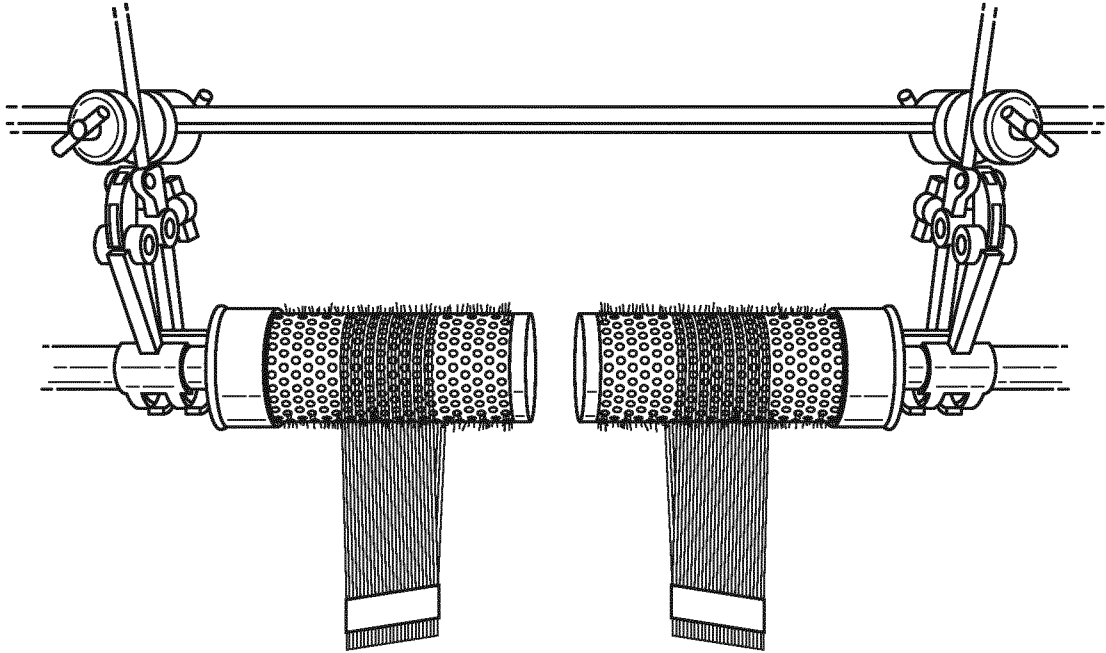
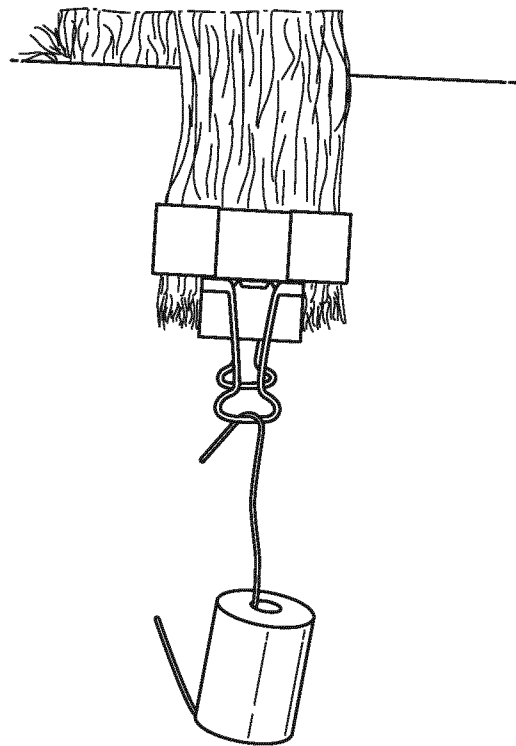


Fig. 2



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/051208

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61K8/34 A61K8/41 A61K8/42 A61Q5/02 A61Q5/12
 ADD.
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 A61K A61Q
 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/136708 A2 (PROCTER & GAMBLE [US]; TORGERSON PETER MARTE [US]; UEHARA NOBUAKI [JP]) 29 November 2007 (2007-11-29) pages 1,8-11 pages 20-21 examples 16-18 page 25	1-5
X	WO 02/096381 A1 (PROCTER & GAMBLE [US]) 5 December 2002 (2002-12-05) pages 10,49 Composition D; page 17 page 65, line 16 - page 66, line 6 examples Cond. 7,8 page 73	1-5

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 12 May 2015	Date of mailing of the international search report 26/05/2015
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Grenouillat, N

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2015/051208

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99/62467 A1 (PROCTER & GAMBLE [US]; UCHIYAMA HIROTAKA [JP]; COFFINDAFFER TIMOTHY W0) 9 December 1999 (1999-12-09) claim 1 page 2, lines 13-17 pages 4,5,8 page 25 page 28 examples 1-6 -----	1-5
X	WO 99/62492 A1 (PROCTER & GAMBLE [US]; UCHIYAMA HIROTAKA [JP]; MIZOGUCHI YUKIKO [JP]) 9 December 1999 (1999-12-09) claim 1 page 2, lines 24-25 pages 6,8,12 page 32 pages 33-37 examples 1-6 -----	1-5
X	US 2006/078527 A1 (MIDHA SANJEEV [US] ET AL) 13 April 2006 (2006-04-13) claim 1 paragraphs [0021], [0028], [0038], [0040], [0181], [0202] examples 1,7,10,12,16 -----	1-5
X	WO 2009/158441 A1 (PROCTER & GAMBLE [US]; OKADA TOSHIYUKI [JP]; VENKATESWARAN ANANTHANARA) 30 December 2009 (2009-12-30) claim 1 pages 6-8 pages 13-18 page 12, line 19 examples 1-4 -----	1-5
X	WO 2013/092118 A1 (UNILEVER NV [NL]; UNILEVER PLC [GB]; UNILEVER HINDUSTAN [IN]; CONOPCO) 27 June 2013 (2013-06-27) claims 1,3,4,12,15 page 15, lines 1-6 page 16, lines 25-27 examples 1,3 Formulations U100, F100, U75, U50, U37.5 -----	1-5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2015/051208

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-5

a conditioning composition comprising a fatty alcohol, a cationic surfactant component, water and comprising from 0.001 to 0.5% wt. benzyl alcohol

1.1. claim: 1

a conditioning composition comprising from 0.4 to 8% wt. fatty alcohol having from 8-22 carbons, from 0.1 to 2% wt. cationic surfactant component, water and wherein the composition has a Draw Mass of from 1 to 250g and comprising from 0.001 to 0.5% wt. benzyl alcohol

1.2. claim: 2

a conditioning composition comprising a conditioning gel phase comprising a fatty alcohol having from 8-22 carbons, a cationic component, water, from 0.001 to 0.5% wt. benzyl alcohol, and obtainable by the process of claim 2

1.3. claim: 3

a conditioning composition comprising a conditioning gel phase comprising a fatty alcohol having from 8-22 carbons, a cationic component, water, from 0.001 to 0.5% wt. benzyl alcohol, and obtainable by the process of claim 3

1.4. claim: 4

a conditioning composition comprising a conditioning gel phase comprising a fatty alcohol having from 8-22 carbons, a cationic component, water, from 0.001 to 0.5% wt. benzyl alcohol, and obtainable by the process of claim 4

1.5. claim: 5

a conditioning composition comprising a conditioning gel phase comprising a fatty alcohol, an amidoamine, a cationic component, water, from 0.001 to 0.5% wt. benzyl alcohol, and obtainable by the process of claim 5

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2015/051208

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2007136708	A2	29-11-2007	AU 2007254194 A1 29-11-2007
			BR PI0711575 A2 16-11-2011
			CN 101621983 A 06-01-2010
			EP 2026749 A2 25-02-2009
			JP 5199238 B2 15-05-2013
			JP 2009534395 A 24-09-2009
			US 2007286837 A1 13-12-2007
			WO 2007136708 A2 29-11-2007

WO 02096381	A1	05-12-2002	NONE

WO 9962467	A1	09-12-1999	AU 7955398 A 20-12-1999
			BR 9815886 A 23-10-2001
			CN 1306412 A 01-08-2001
			EP 1083864 A1 21-03-2001
			JP 2000515563 A 21-11-2000
			WO 9962467 A1 09-12-1999

WO 9962492	A1	09-12-1999	AU 7824698 A 20-12-1999
			WO 9962492 A1 09-12-1999

US 2006078527	A1	13-04-2006	EP 1796617 A1 20-06-2007
			JP 2008515921 A 15-05-2008
			US 2006078527 A1 13-04-2006
			WO 2006042180 A1 20-04-2006

WO 2009158441	A1	30-12-2009	AU 2009262206 A1 30-12-2009
			AU 2009262207 A1 30-12-2009
			AU 2009262208 A1 30-12-2009
			AU 2009262209 A1 30-12-2009
			CA 2728068 A1 30-12-2009
			CA 2728074 A1 30-12-2009
			CA 2728211 A1 30-12-2009
			CA 2728212 A1 30-12-2009
			CN 102076379 A 25-05-2011
			CN 102076380 A 25-05-2011
			CN 102076381 A 25-05-2011
			CN 102159178 A 17-08-2011
			CN 102215807 A 12-10-2011
			EP 2288415 A1 02-03-2011
			EP 2293766 A2 16-03-2011
			EP 2293767 A2 16-03-2011
			EP 2293848 A1 16-03-2011
			EP 2315616 A1 04-05-2011
			JP 2011525541 A 22-09-2011
			JP 2011525542 A 22-09-2011
			JP 2011525543 A 22-09-2011
			JP 2011525544 A 22-09-2011
			JP 2012508688 A 12-04-2012
			US 2009324527 A1 31-12-2009
			US 2009324528 A1 31-12-2009
			US 2009324529 A1 31-12-2009
			US 2009324531 A1 31-12-2009
			US 2009324532 A1 31-12-2009
			WO 2009158439 A2 30-12-2009
			WO 2009158440 A2 30-12-2009
			WO 2009158441 A1 30-12-2009
			WO 2009158442 A1 30-12-2009

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2015/051208

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		WO 2009158443 A1	30-12-2009

WO 2013092118 A1	27-06-2013	CN 103998100 A	20-08-2014
		EP 2794026 A1	29-10-2014
		US 2015125416 A1	07-05-2015
		WO 2013092118 A1	27-06-2013
