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(19) **United States**(12) **Patent Application Publication****Savaides et al.**(10) **Pub. No.: US 2022/0401342 A1**(43) **Pub. Date: Dec. 22, 2022**(54) **CONDITIONING COMPOSITION****Publication Classification**(71) Applicant: **Henkel AG & Co. KGaA**, Duesseldorf (DE)(72) Inventors: **Andrew Savaides**, Norwalk, CT (US);
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Jennifer Sullivan Macary, Danbury, CT (US)(73) Assignee: **Henkel AG & Co. KGaA**, Duesseldorf (DE)(21) Appl. No.: **17/898,407**(22) Filed: **Aug. 29, 2022****Related U.S. Application Data**

(63) Continuation of application No. PCT/US2021/020261, filed on Mar. 1, 2021.

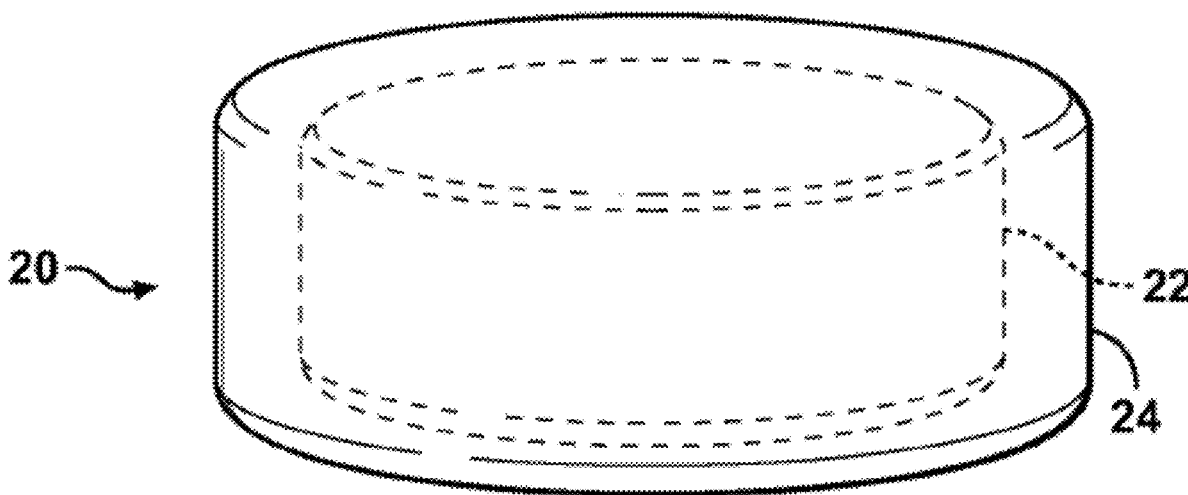
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(57)

ABSTRACT

A conditioning composition is free of talc and includes tapioca starch, optionally potato starch, optionally corn starch, at least one anionic surfactant, and optionally at least one amphoteric surfactant, which may be described as a core particle. The conditioning composition may include, or be free of, a coating disposed about at least a portion of the core particle and having a compound chosen from cellulose polymers, anionic or cationic polymers, vinyl polymers, natural polymers, polysaccharides, copolymers thereof, and combinations thereof. The conditioning composition includes from about 0 to about 25 percent by weight of liquid, has a pH of from about 3.5 to about 5 when mixed with water at about 10 wt % and produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C. degrees.



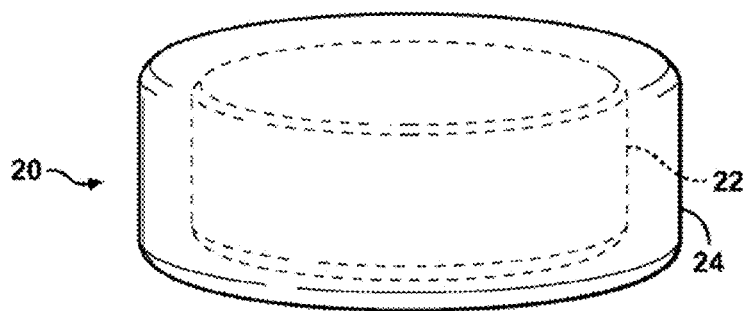


FIG. 1

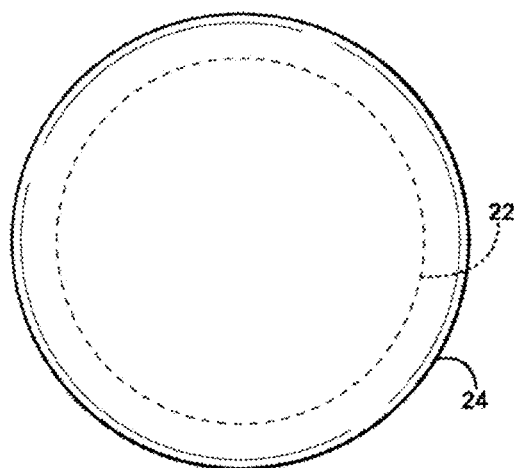


FIG. 2

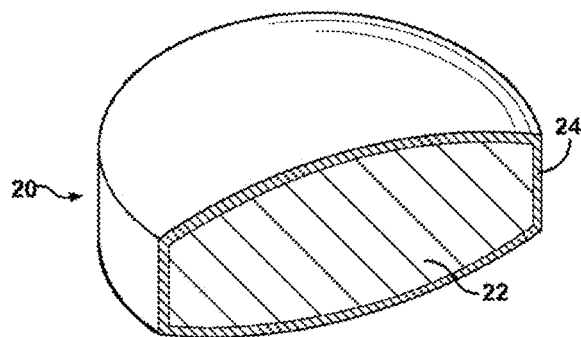


FIG. 3

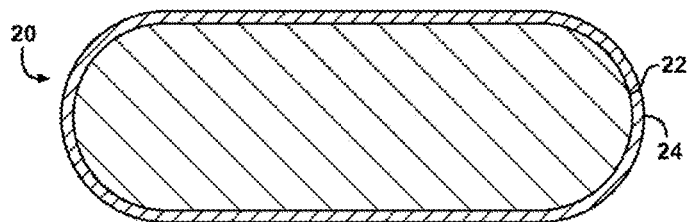


FIG. 4

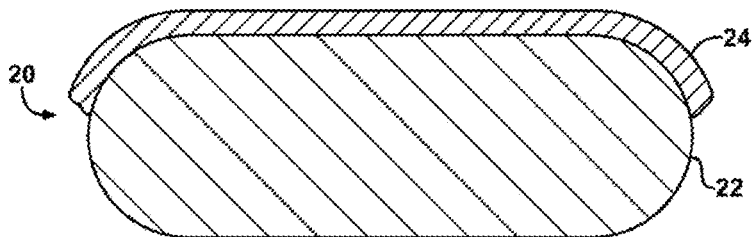


FIG. 5

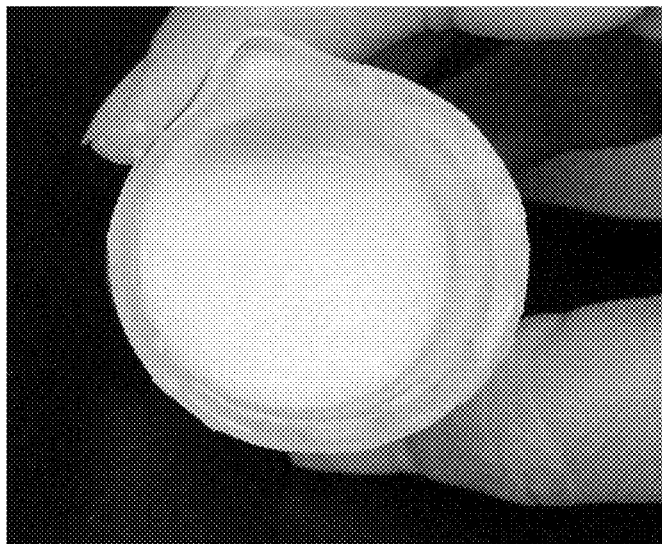


FIG. 6

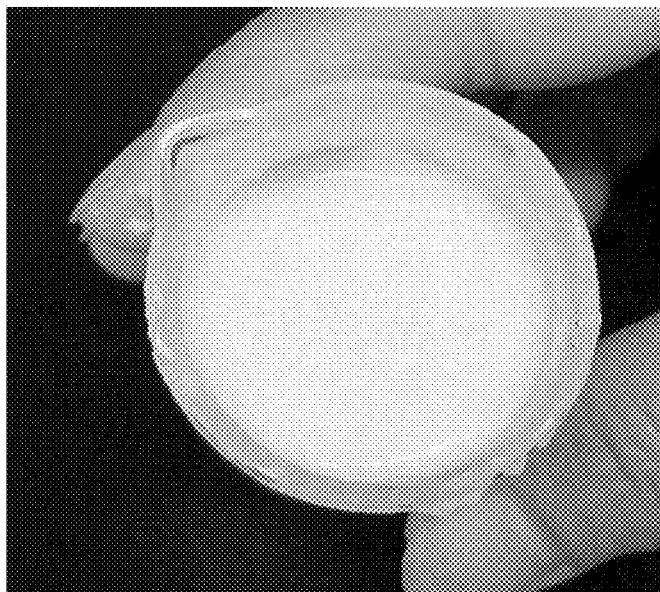


FIG. 7

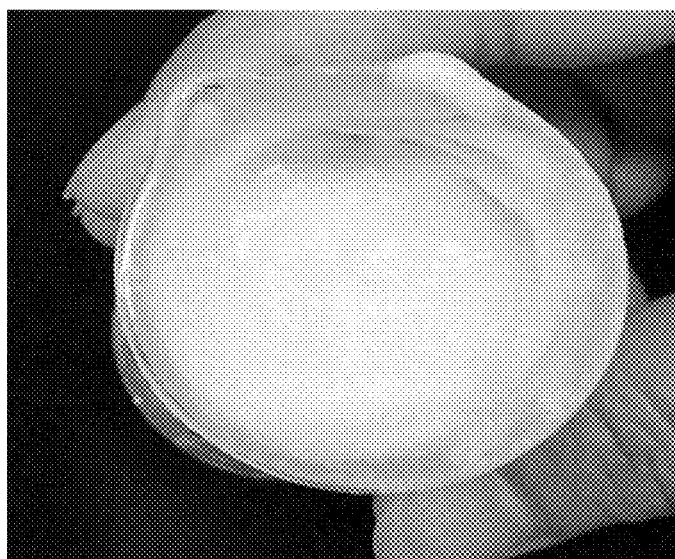
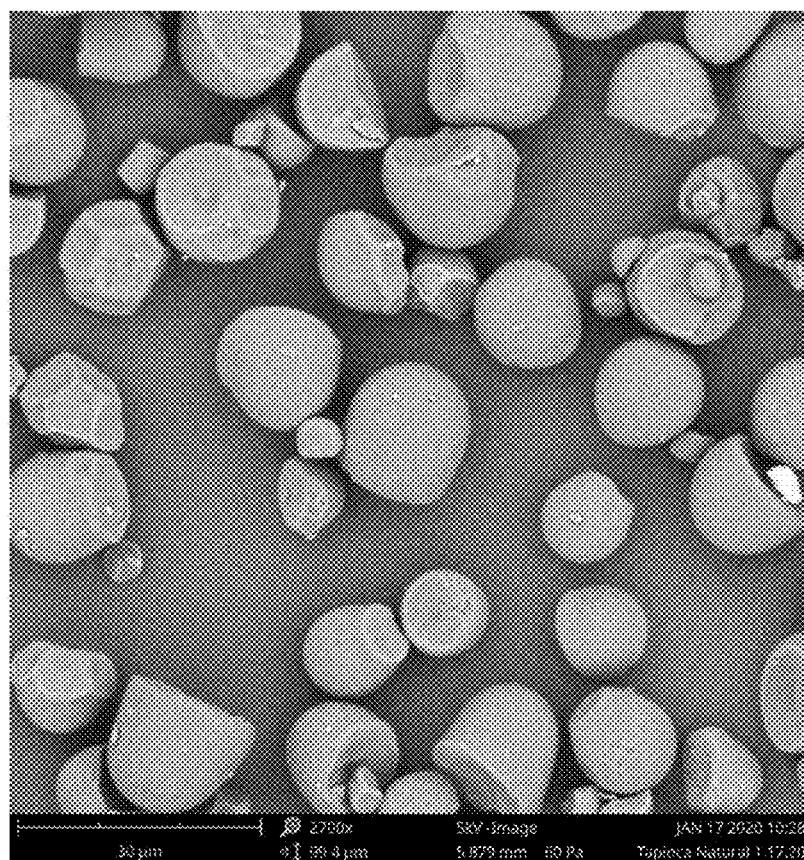
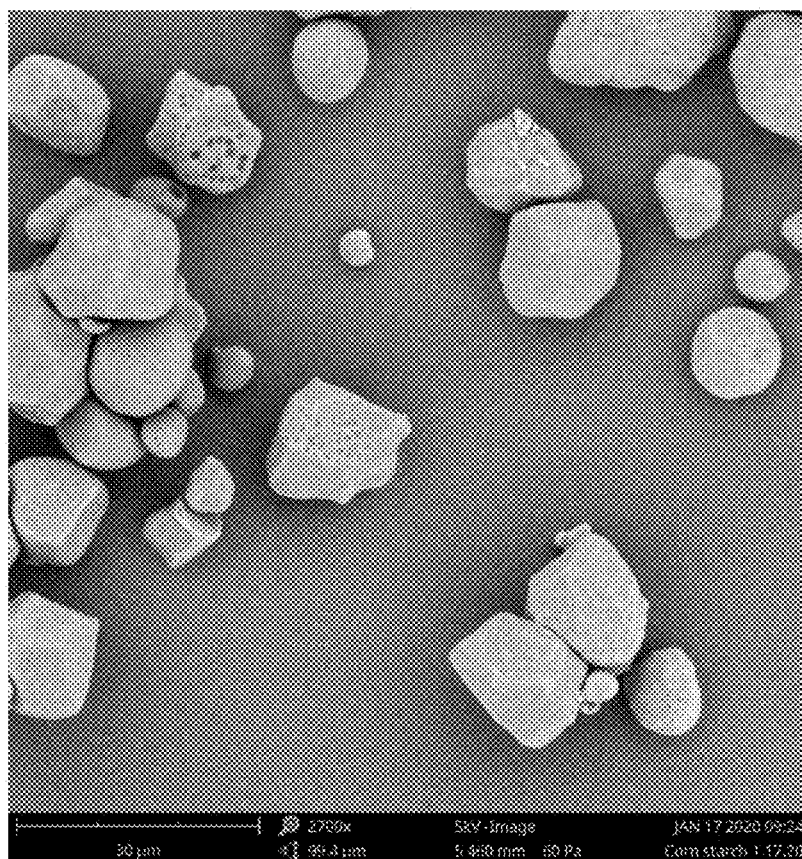
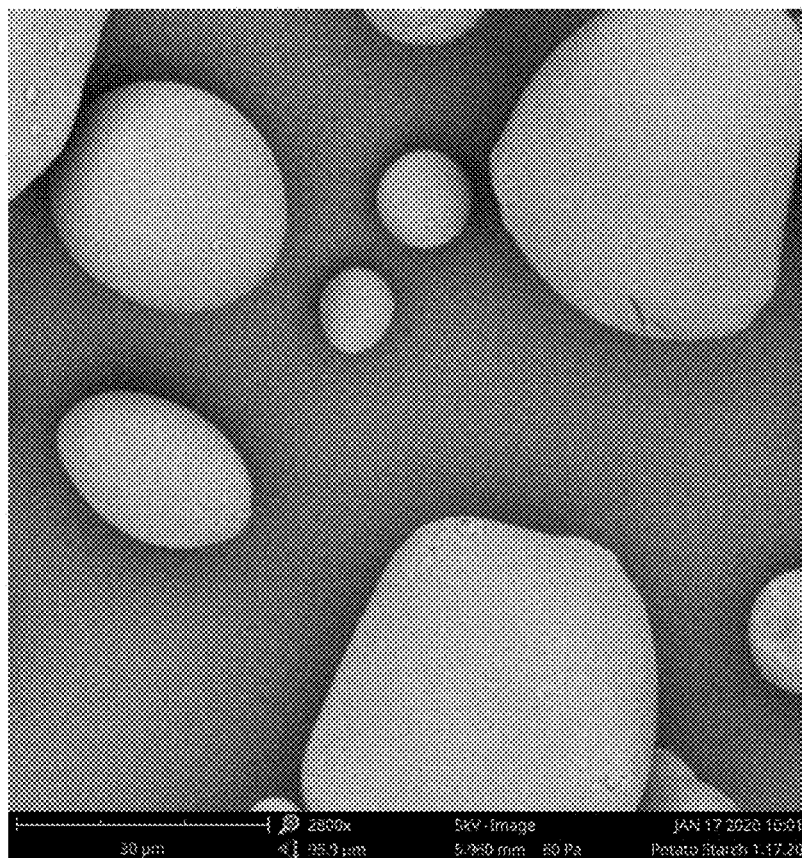


FIG. 8

**FIG. 9**

**FIG. 10**

**FIG. 11**

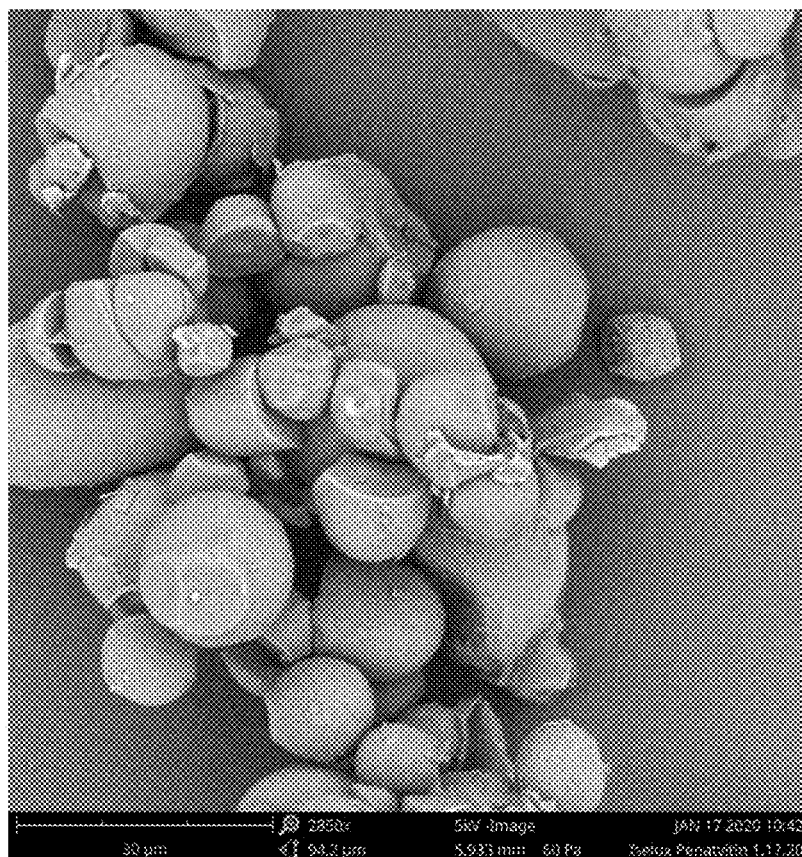


FIG. 12

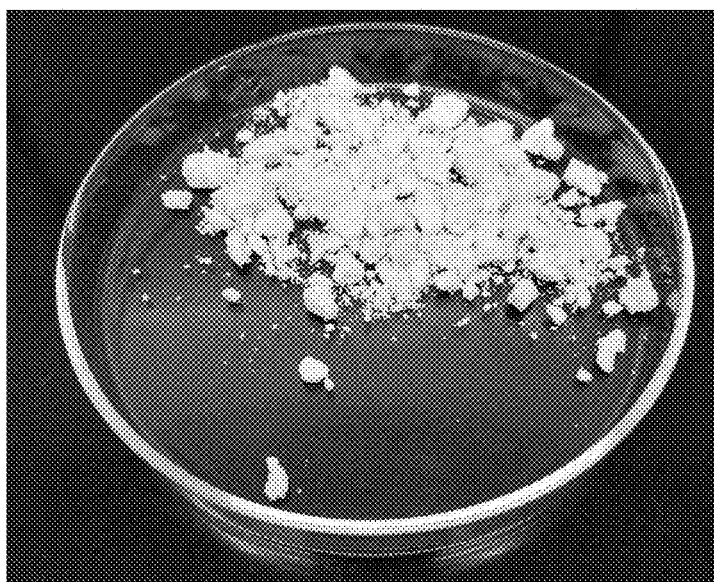


FIG. 13

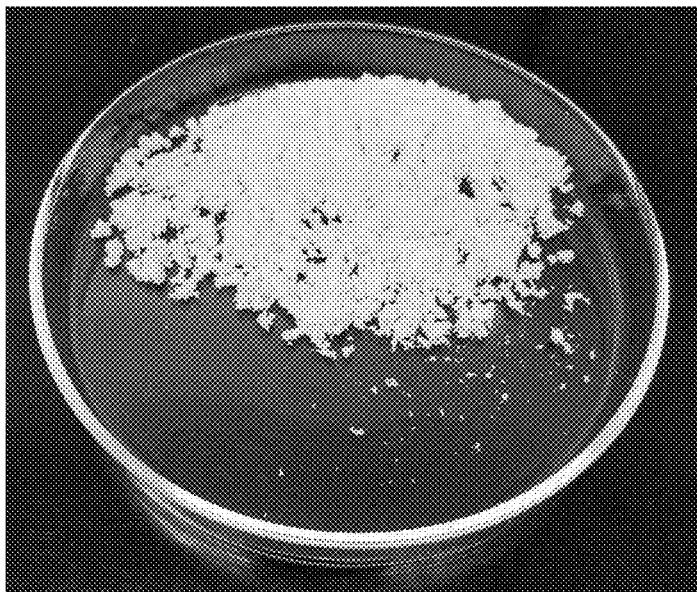


FIG. 14

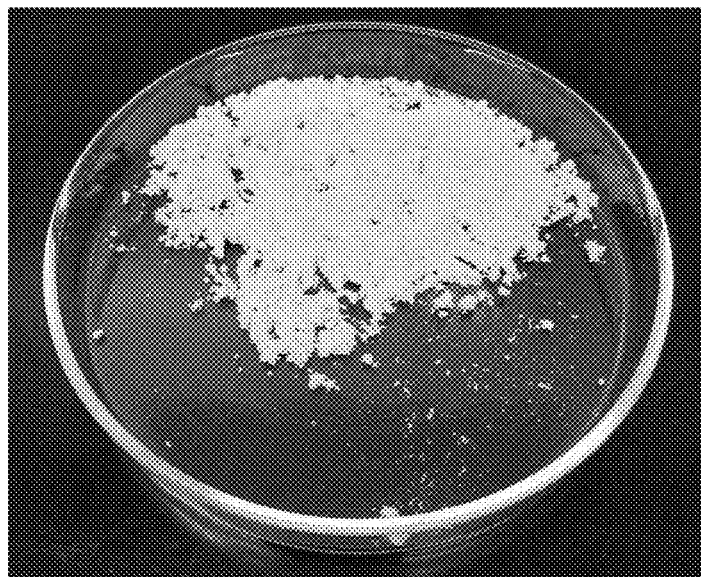


FIG. 15

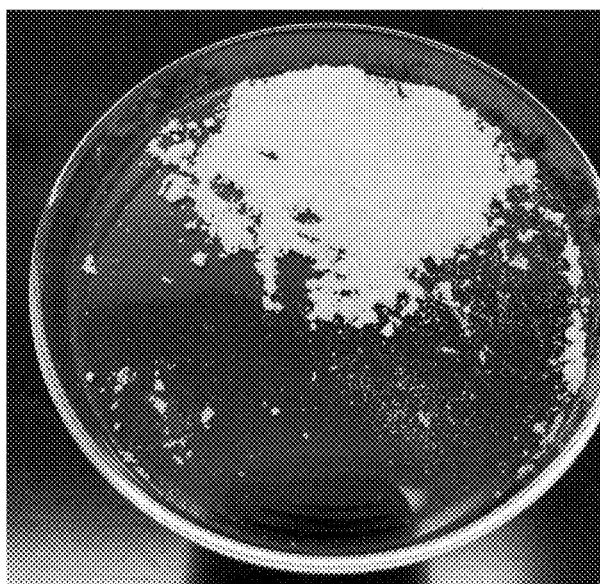


FIG. 16

CONDITIONING COMPOSITION

FIELD OF THE INVENTION

[0001] The present disclosure generally relates to a conditioning composition that is free of talc and includes tapioca starch, optionally potato starch, optionally corn starch, at least one anionic surfactant, and optionally at least one amphoteric surfactant.

BACKGROUND OF THE INVENTION

[0002] Many personal care products are formulated to provide consumers with effective conditioning as well as additional benefits. However, traditional conditioning products present various challenges. Most of these products are liquid based, can be messy, difficult to dose properly and tend to leak during transport. For example, many include about 85-90 wt. % water and lose efficacy and integrity in water solutions over time. This loss of performance is due to incompatibility of reactions that are not visible, thus consumers do not receive the necessary fresh benefits of the product. The early development of waterless products in the market have been as aerosols that are delivered as mousse leave-on products on hair. These forms of hair care products are convenient for traveling and are effective for a few hours, but they tend to leave the hair coated with undesirable effects of oil, limpness and dullness. Furthermore, these conventional products are sold in large packaging and volumes, which commits the consumer to a specific fragrance or product benefit for an extended period. These products are of a single pH range which changes in time and can damage hair and are not suitable for all hair types. Furthermore, these products require high energy and heating to 70-80° C. for emulsification for 35-60 minutes. Very often initial or final viscosities are inconsistent and unpredictable with discoloration which is problematic because viscosity has thermodynamic effects on thickening and thinning products.

[0003] Unit dose products have been accepted in the laundry and dishwashing fields because these products have advantages of being convenient, easy to dispense, and provide the opportunity to customize each wash for the benefits the consumer is seeking. Similar advantages are desired by consumers in the personal care space. For example, cosmetic articles intended to be used once to cleanse the skin or hair are well known for their practical benefits. Disposable wipes impregnated with a liquid cosmetic formulation are suitable for single use but requires disposal of the nonwoven sheet. Travel sized and single use toiletries are available but demand the use of more packaging and are not environmentally friendly. Single use bar soaps and other forms of single use soap exist but utilize raw materials that consumers do not want in their products such as talc.

[0004] Consumer demand for natural beauty products has been a growing trend for years and has led to the rise of “free from” advertisements on the front of various products. Key attributes in demand are biodegradable and sustainable raw materials, as well as products “free from” sulfates, alcohol, parabens, talc and other things consumers perceive as less than beneficial. Formulating to meet all these desired demands is technically difficult and limits the choice of raw materials available to the formulator.

[0005] In hair conditioners, silicones such as cyclomethicones, dimethicones, amino silicones are used as the primary

conditioners in combination with or without quaternary ammonium compounds. Formulation with silicones D4, D5 and D6 have recently been reduced in hair conditioners. Emulsification of silicones systems require emulsifier/surfactant and a heating temperature of about 70-80° C. for at least 30-60 minutes along with cooling. Accelerated or thermodynamic aging of raw materials in the product is not avoided. Furthermore, such formulations tend to lack production efficiency and down time.

[0006] There are some products on the market that are environmentally friendly and consumer friendly, but still have additional drawbacks. Loose anhydrous powder, such as that disclosed in WO 2019/001940, does not solve the problems of single use, customization, or remaining free from talc. Foaming conditioning powders on the market are also loose powders, which are messy and difficult for consumers to dose. Still other products crumble during shipping thereby forming a coarse and gritty texture that is not commercially desirable. Moreover, these types of compositions use propylene glycol and not water thus reducing commercial desire among consumers and also tend to have a rough hand feel.

[0007] Accordingly, there remains an opportunity for improvement. Furthermore, other desirable features and characteristics of the present disclosure will become apparent from the subsequent detailed description of the disclosure and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

BRIEF SUMMARY OF THE INVENTION

[0008] This disclosure provides an encapsulated conditioning composition that is free of talc and includes a core particle that is a powder. The core particle includes tapioca starch, optionally potato starch, optionally corn starch, at least one anionic surfactant, and optionally at least one amphoteric surfactant. The encapsulated conditioning composition also includes a coating disposed about at least a portion of the core particle and comprising a compound chosen from cellulose polymers, anionic or cationic polymers, vinyl polymers, natural polymers, polysaccharides, copolymers thereof, and combinations thereof. The encapsulated conditioning composition includes from about 0 to about 25 percent by weight of liquid, has a pH of from about 3.5 to about 5 when mixed with water at about 10 wt % and produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C.

[0009] This disclosure also provides a non-encapsulated conditioning composition that is a powder, is free of talc, and includes: tapioca starch, optionally potato starch, optionally corn starch, at least one anionic surfactant, and optionally at least one amphoteric surfactant. In this embodiment, the non-encapsulated conditioning composition includes from about 0 to about 18 percent by weight of liquid, has a pH of from about 3.5 to about 5 when mixed with water at about 10 wt % and produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C.

[0010] This disclosure even further provides a conditioning composition that can be encapsulated or non-encapsulated and may or may not include a coating disposed thereon. This conditioning composition is free of talc and includes a powder including tapioca starch present in an

amount of from about 60 to about 65 weight percent based on a total weight of the powder, potato starch present in an amount of from about 3 to about 5 weight percent based on a total weight of the powder, corn starch present in an amount of from about 4 to about 6 weight percent based on a total weight of the powder, at least one anionic surfactant that is a glutamate and that is present in an amount of from about 2 to about 4 weight percent based on a total weight of the powder, and at least one amphoteric surfactant that is a betaine and that is present in an amount of from about 3 to about 5 weight percent based on a total weight of the powder. The powder includes from about 0 to about 5 percent by weight of liquid, has a pH of from about 3.80 to about 4.80 when mixed with water at about 10 wt % and has a viscosity when dissolved as 10 wt % in about 100 mL water of from about 12,000 to about 20,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C. Moreover, the powder produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C.

[0011] This composition is surprisingly advantageous as it readily disintegrates and provides little to no flash foam which can be then used to condition the skin and hair. The conditioning composition is also gentle, mild and moisturizing to the skin. Moreover, the composition is free from talc. Talc is used in powder formulations to contribute slip and a silky skin feel. In the instant composition, the tapioca starch, in optional combination with the other starches, surprisingly provides the desired skin feel without the need for talc.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present disclosure will hereinafter be described in conjunction with the following drawing figures, wherein like numerals denote like elements, and

[0013] FIG. 1 is a perspective view of an encapsulated conditioning composition including a core particle in the form of a tablet and also including the coating disposed about at least a portion of the core particle.

[0014] FIG. 2 is a top view of the encapsulated conditioning composition of FIG. 1.

[0015] FIG. 3 is a partially cut-away view of the encapsulated conditioning composition of FIG. 1.

[0016] FIG. 4 is a cross-sectional view of an encapsulated conditioning composition including the core particle in the form of a capsule and also including the coating disposed about at least a portion of the core particle.

[0017] FIG. 5 is a cross-sectional view of an encapsulated conditioning composition including the core particle in the form of a capsule and including the coating disposed about at least a portion of a portion of the core particle.

[0018] FIG. 6 is a photograph that shows an embodiment of the composition that has a powder:water weight ratio of about 1:1.5.

[0019] FIG. 7 is a photograph that shows an embodiment of the composition that has a powder:water weight ratio of about 1:2.

[0020] FIG. 8 is a photograph that shows an embodiment of the composition that has a powder:water weight ratio of about 1:1.

[0021] FIG. 9 is a scanning electron microscope image of tapioca starch particles that are rounded small particles that provide closing packing and rigidity to structure of the coating composition.

[0022] FIG. 10 is a scanning electron microscope image of corn starch particles that are small and have irregular shape.

[0023] FIG. 11 is a scanning electron microscope image of potato starch particles that are large round particles that provide soft hand feel and rapid dissolution to the composition.

[0024] FIG. 12 is a scanning electron microscope image of cubic shaped core particles that include a combination of large and small particle starches that provide close packing, giving rigidity and strength to the core particle while maintaining rapid dissolution and soft hand feel.

[0025] FIG. 13 is a photograph of Composition 6 of the Examples showing agglomeration or clumping after storage at about 60-65% relative humidity after about 15 days at ambient temperature.

[0026] FIG. 14 is a photograph of Composition 11 of the Examples showing agglomeration or clumping after storage at about 60-65% relative humidity after about 15 days at ambient temperature.

[0027] FIG. 15 is a photograph of Composition 12 of the Examples showing agglomeration or clumping after storage at about 60-65% relative humidity after about 15 days at ambient temperature.

[0028] FIG. 16 is a photograph of Composition 16 of the Examples showing agglomeration or clumping after storage at about 60-65% relative humidity after about 15 days at ambient temperature.

DETAILED DESCRIPTION OF THE INVENTION

[0029] The following detailed description is merely exemplary in nature and is not intended to limit the encapsulated conditioning composition. Furthermore, there is no intention to be bound by any theory presented in the preceding background or the following detailed description.

[0030] Embodiments of the present disclosure are generally directed to a conditioning composition and methods for fabricating the same. For the sake of brevity, conventional techniques related to conditioning compositions may not be described in detail herein. Moreover, the various tasks and process steps described herein may be incorporated into a more comprehensive procedure or process having additional steps or functionality not described in detail herein. In particular, various steps in the manufacture of conditioning compositions are well-known and so, in the interest of brevity, many conventional steps will only be mentioned briefly herein or will be omitted entirely without providing the well-known process details.

[0031] In one embodiment, this disclosure provides an encapsulated conditioning composition that is free of talc and includes a core particle that is a powder. The core particle includes tapioca starch, optionally potato starch, optionally corn starch, at least one anionic surfactant, and optionally at least one amphoteric surfactant. The encapsulated conditioning composition also includes a coating disposed about at least a portion of the core particle and comprising a compound chosen from cellulose polymers, anionic or cationic polymers, vinyl polymers, natural polymers, polysaccharides, copolymers thereof, and combinations thereof. The conditioning composition includes from

about 0 to about 25 percent by weight of liquid, has a pH of from about 3.5 to about 5 when mixed with water at about 10 wt % and produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0032] In another embodiment, this disclosure also provides a non-encapsulated conditioning composition that is a powder, is free of talc, and includes: tapioca starch, optionally potato starch, optionally corn starch, at least one anionic surfactant, and optionally at least one amphoteric surfactant. In this embodiment, the conditioning composition includes from about 0 to about 18 percent by weight of liquid, has a pH of from about 3.5 to about 5 when mixed with water at about 10 wt % and produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C. This non-encapsulated conditioning composition may be a free-flowing powder or may be pressed into a shape, such as a cube, as further described below. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0033] This disclosure even further provides a conditioning composition that can be encapsulated or non-encapsulated. This conditioning composition is free of talc and includes a powder including tapioca starch present in an amount of from about 60 to about 65 weight percent based on a total weight of the powder, potato starch present in an amount of from about 3 to about 5 weight percent based on a total weight of the powder, corn starch present in an amount of from about 4 to about 6 weight percent based on a total weight of the powder, at least one anionic surfactant that is a glutamate and that is present in an amount of from about 2 to about 4 weight percent based on a total weight of the powder, and at least one amphoteric surfactant that is a betaine and that is present in an amount of from about 3 to about 5 weight percent based on a total weight of the powder. The powder includes from about 0 to about 5 percent by weight of liquid, has a pH of from about 3.80 to about 4.80 when mixed with water at about 10 wt % and has a viscosity when dissolved as 10 wt % in about 100 mL water of from about 12,000 to about 20,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C. Moreover, the powder produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0034] It is contemplated that when describing individual components of the conditioning composition any of the weight percents described below may be based on a weight of the conditioning composition as a whole or on a weight of the core particle as a whole (not including the weight of the optional coating) or on a weight of the entire encapsulated or non-encapsulated composition. Similarly, when any component (not including the optional coating) is described as being part of, or included in, the conditioning composition, those of skill in the art will recognize that this may also mean that the component is part of the core particle itself.

[0035] The conditioning compositions disclosed are useful in conditioning the skin, body, and/or hair, while remaining gentle and moisturizing. In one embodiment, the combination of potato and tapioca starch with the coating can provide a pressed powder with sufficient strength and rigidity to withstand packaging and shipping, but the product is soft enough to crush in the consumer's hand. The formulation is mild and gentle, moisturizing, naturally based and environmentally friendly. Alternatively, the combination of the potato, tapioca, and corn starches can also provide similar characteristics. Even further, any one of the starches alone can be used.

[0036] In one embodiment, as shown in FIG. 1, this disclosure provides the encapsulated conditioning composition (20) (hereinafter referred to as an "encapsulated composition"). The encapsulated composition (20) includes a core particle (22), as also shown in FIGS. 2-5. The core particle (22) is typically a solid but may be gel-like. Alternatively, the core particle (22) may have both solid portions and gel-like portions. In one embodiment, the core particle (22) is a tablet, as shown, for example, in FIGS. 1-3. In other embodiment, the core particle (22) is a capsule or caplet, as shown, for example, in FIGS. 4-5. In another embodiment, not shown in the Figures, the core particle is a cube. In still other embodiments, the core particle (22) is selected from the group of briquettes, pills, pellets, bricks, sachets, and combinations thereof. In one embodiment, the core particle (22) has a coin shape or a compressed cylindrical shape. In one embodiment, the core particle (22) is further defined as a "massive body" which, as is known in the art, refers to a solid shape (typically a porous solid shape) that includes a mixture of particulates. The particulates may be particulates of any of the components described herein. The core particle may be described as a plurality of particles of crushed powder. For example, any one or more of the components may be combined to form a shape (shaped body), e.g. in a mold. The shaped body may then be coated with a coating (24), or be free of the coating (24), which may also be referred to as an encapsulant or protective layer, as described in greater detail below. Throughout this disclosure, it is contemplated that the terminology "core particle" may also refer to the non-encapsulated composition, a free-flowing powder, etc. in various non-limiting embodiments.

[0037] The core particle (22) or composition, regardless of whether it is encapsulated or non-encapsulated, is not limited in shape, size, or mass. In various embodiments, the core particle (22) has a weight of from about 0.01 to about 20, about 0.05 to about 20, about 0.1 to about 20, about 0.5 to about 20, about 1 to about 19.5, about 1.5 to about 19, about 2 to about 18.5, about 2.5 to about 18, about 3 to about 17.5, about 3.5 to about 17, about 4 to about 16.5, about 4.5 to about 16, about 5 to about 15.5, about 5.5 to about 15, about 6 to about 14.5, about 6.5 to about 14, about 7 to about 13.5, about 7.5 to about 13, about 8 to about 12.5, about 8.5 to about 12, about 9 to about 11.5, about 9.5 to about 11, about 10 to about 10.5, about 2.5 to about 13, about 0.5 to about 5, or about 5 to about 20, grams. It is contemplated that the entire conditioning composition may also have a weight as described above or even up to about 21, 22, 23, 24, 25, 26, 27, 28, 29, or 30, grams. However, it is also contemplated that smaller or larger core particles can be used. In various non-limiting embodiments, it is contemplated

plated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0038] In one embodiment, the core particle (22) or composition is in the form of granules. The core particle (22) can be small fractionated objects formed from solid particles aggregated together, of variable shapes and sizes. They may be regular or irregular in shape. They may in particular have a spherical shape, a square shape, a rectangular shape, or an elongated shape such as rods. In particular, the core particle (22) can be in the form of small fractionated objects, which can have varied shapes, generally a regular shape and typically a spherical shape or well-calibrated (uniform) spherical shape. In one embodiment, spherical particles are quite particularly preferred. It is contemplated that instead of a core particle, the powder is free-flowing.

[0039] The (average) size of the particles of the core particle or composition is not particularly limited and can be from about 1 to about 5000 μm , from about 50 to about 5000 μm , from about 100 to about 3500 μm , or from about 200 to about 3000 μm . In other embodiments, the particles have an (average) size of about 1, 2, 3, 4, 5 . . . 10 . . . 50, 100, 150, 200, 250, 300, 350, 400, 450, 500 . . . up to about 5000, μm . Similarly, the D10, D50, and D90 values for the particles may be any of the above and may be alternatively described as Dn10, Dv10, Dn50, Dv50, Dn90, or Dv90. The size of the particles can be determined by manual sieving or via a mechanical calibrator, and also by laser particle size analysis, using for example the Malvern Mastersizer 3000. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0040] Starch can be used in pressed powder tablets because it is compressible, inert, free flowing, cost effective and exhibits good disintegration properties. Water can be incorporated into dry powder starches to bind the starches together through interactions such as hydrogen bonding. The addition of water encourages stronger interaction between the starch hydroxyl groups which helps give strength and hardness to the final pressed powders.

[0041] The instant composition and/or core particle may include a liquid, such as water, or may be free of a liquid, such as water. Other liquids may include additives, surfactants, etc. In various embodiments, the liquid is present in an amount of from about 0 to about 30, about 1 to about 30, about 5 to about 25, about 10 to about 20, about 10 to about 15, about 15 to about 20, weight percent based on a total weight of the core particle and/or composition. In various other embodiments, the amount of liquid is from about 0 to about 25, about 5 to about 20, about 10 to about 15, about 5 to about 25, about 5 to about 15, about 5 to about 10, about 10 to about 25, about 10 to about 20, about 15 to about 25, about 15 to about 20, or about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25, weight percent based on a total weight of the core particle and/or composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0042] In various embodiments, the core particle and/or composition may have a weight ratio of powder:liquid is from about 1:1 to about 1:3, about 1 to about 2.5, about 1 to about 2, about 1 to about 1.5, about 1.5 to about 3, about 1.5

to about 2.5, about 1.5 to about 2, about 2 to about 3, about 2 to about 2.5, or about 2.5 to about 3. Various examples are set forth in FIGS. 6-8. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

Free of Talc:

[0043] The composition and/or core particle is typically free of talc. In various embodiments, the composition includes less than 5, 4, 3, 2, 1, 0.5, or 0.1, weight percent of talc based on a total weight of the core particle and/or conditioning composition. In other embodiments, the composition is completely free of talc. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

Starch:

[0044] As first introduced above, the composition and/or core particle includes tapioca starch, and optionally potato starch, and optionally corn starch. The starch, or combination of starches, are used to achieve desired benefits as shown, for example, in FIGS. 9 and 11. Natural starch is comprised of amylose which is linear and amylopectin which is branched. Starches from different sources contain different proportions of these components which contribute to different properties. Additionally, the source of the starch, e.g. corn, potato or tapioca leads to different starches having different particle shapes and sizes. These properties of various starches influence the end results of formulating with these raw materials. For example, in one embodiment, tapioca starch is not used alone because it becomes too compact and cannot be broken apart easily. Corn starch has irregular polyhedron shaped granules having a diameter of from about 5 to about 20 μm , as shown for example in FIG. 10. Any starch known in the art can be used in combination with the tapioca starch. Similarly, the compositions described herein may be free of any one or more starches known in the art, apart from tapioca starch.

[0045] The composition and/or core particle may be free of rice starch. In various embodiments, the composition and/or core particle includes less than 5, 4, 3, 2, 1, 0.5, or 0.1, weight percent of a starch, such as rice starch, based on a total weight of the core particle and/or conditioning composition. In other embodiments, the composition and/or core particle is completely free of a starch, such as starch, so long as this starch is not tapioca starch. It is also contemplated that the composition and/or core particle may be free of potato starch and/or corn starch, e.g. in the weight amounts described above or may be totally free of potato starch and/or rice starch. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0046] In various embodiments, tapioca starch can be used in combination with potato and/or corn starch to provide strength to the composition as a pressed powder, as well as a gentle crumble and soft feel. Potato starch has one of the largest particle sizes of native starches averaging from about 18 to about 60 μm . The larger particles are spherical and smooth in shape, giving a very silky skin feel due to the ball bearing effect. Tapioca starch has irregular round spheres

with smaller particle sizes of from about 5 to about 25 μm . The combination of the large and smaller particles, which may include corn starch, allows for close packing and interaction during compression. This provides the strength to a pressed powder to hold up during packaging, shipping and consumer use.

[0047] In various embodiments, the tapioca starch has a moisture level of less than about 15 wt. %. The potato starch may have a maximum moisture level of about 205 mg water/g of starch. Tapioca starch is typically obtained from the roots of *Manihot esculenta* and includes primarily amylose and amylopectin. Potato starch is a polysaccharide obtained from the potato and may be alternatively described as *solanum tuberosum* starch.

[0048] In various embodiments, the tapioca starch is present in an amount of from at least about 1, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or up to about 99, weight percent based on a total weight percent of the core particle or composition. In other embodiments, the tapioca starch is present in an amount of from about 10 to about 40, about 15 to about 35, about 20 to about 30, about 25 to about 30, about 25 to about 35, or about 30 to about 40, weight percent based on a total weight percent of the core particle or composition. In still other embodiments, the tapioca starch is present in an amount of from about 30 to about 70, about 30 to about 65, about 30 to about 60, or about 30 to about 55, weight percent based on a total weight percent of the core particle or composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0049] In various embodiments, the potato starch is present in an amount of from at least about 1, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or up to about 99, weight percent based on a total weight percent of the core particle or composition. In other embodiments, the potato starch is present in an amount of from about 10 to about 40, about 15 to about 35, about 20 to about 30, about 25 to about 30, about 25 to about 35, or about 30 to about 40, weight percent based on a total weight percent of the core particle or composition. In various embodiments, the potato starch is present in an amount of from about 1 to about 30, about 5 to about 25, about 10 to about 20, about 15 to about 20, about 1 to about 10, about 1 to about 5, about 5 to about 10, or about 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10, weight percent based on a total weight percent of the core particle or composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0050] In various embodiments, the corn starch is present in an amount of from at least about 1, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or up to about 99, weight percent based on a total weight percent of the core particle or composition. In other embodiments, the corn starch is present in an amount of from about 10 to about 40, about 15 to about 35, about 20 to about 30, about 25 to about 30, about 25 to about 35, or about 30 to about 40, weight percent based on a total weight percent of the core particle or composition. In various embodiments, the corn starch is present in an amount of from about 1 to about 10, about 1 to about 5, about 5 to about 10, or about 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10, weight percent based on a total weight

of the core particle or composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0051] In various embodiments, the total amount of tapioca starch, potato starch, and corn starch is from about 10 to about 80 weight percent based on a total weight of the core particle or composition. In other embodiments, this amount is from about 15 to about 75, about 20 to about 70, about 25 to about 65, about 30 to about 60, about 35 to about 55, about 40 to about 50, or about 45 to about 50, weight percent based on a total weight of the core particle or composition. In still other embodiments, the tapioca starch is present in an amount of about 30 to about 70, about 35 to about 65, about 40 to about 60, about 45 to about 55, about 50 to about 55, about 60 to about 70, about 60 to about 65, or about 65 to about 70, weight percent based on a total weight of the core particle or composition. In other embodiments, the potato starch is present in an amount of from about 0 to about 30, about 5 to about 25, about 10 to about 20, or about 15 to about 20, weight percent based on a total weight of the core particle or the composition. In other embodiments, the corn starch is present in an amount of from about 0 to about 5, or about 1, 2, 3, 4, or 5, weight percent based on a total weight of the core particle or composition. In various embodiments, the aforementioned values may be 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, or 80 weight percent based on the total weight of the core particle or composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein. All combinations of the above are also hereby expressly contemplated.

[0052] The weight ratio of the tapioca starch to the potato starch to the corn starch is not particularly limited. In various embodiments, the weight ratio value of the tapioca starch is from about 1 to about 100, the weight ratio value of the potato starch is from about 0 to about 99, and the weight ratio value of the corn starch is about 0 to about 99, relative (tapioca starch):(potato starch):(corn starch). In various embodiments, one or more of the values of the tapioca starch, the potato starch, and/or the corn starch, is each independently 1, 2, 3, 4, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 96, 97, 98, or 99. In various embodiments, the weight ratio of tapioca starch:potato starch:corn starch is about 1:1:0 to about 60:5:0. In other embodiments, the weight ratio of tapioca starch:potato starch:corn starch is about 70:0:5 to about 65:0:2 to about 60:0:2. In other embodiments, the weight ratio of tapioca starch:potato starch:corn starch is about 65:4:5 to about 60:4:5. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein. All combinations of the above are also hereby expressly contemplated.

At Least One Anionic Surfactant:

[0053] The composition and/or core particle also includes at least one anionic surfactant. For example, only a single anionic surfactant may be utilized or a combination of two or more anionic surfactants may be utilized. Anionic surfactants provide excellent conditioning. It is desirable to provide conditioning while remaining gentle and mild to the

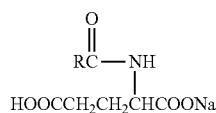
skin. The at least one anionic surfactant is not particularly limited and may be any known in the art.

[0054] In one embodiment, the at least one anionic surfactant is an alkyl sulfate having a long chain hydrocarbon (e.g. C6-C20) attached to a sulfonate group. In another embodiment, the composition is free of alkyl sulfates.

[0055] To reduce skin irritation while achieving the desired performance, gentle anionic surfactants can be leveraged as well as combinations of anionic surfactants with amphoteric surfactants as secondary surfactants.

[0056] In various embodiments, the at least one anionic surfactant is a mild surfactant that is chosen from acyl glutamates, acyl isethionates, sarcosinates, taurates, and combinations thereof.

[0057] Acyl glutamates are salts of glutamic acid and are either monovalent or divalent having the general structure:



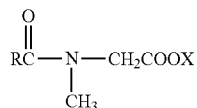
wherein R is a linear or branched, saturated or unsaturated, alkyl chain having from about 8 to about 30 carbon atoms. Various non-limiting examples of suitable glutamates include TEA-Cocoyl Glutamate, Sodium Lauroyl Glutamate, Sodium Cocoyl Glutamate, Potassium Cocoyl Glutamate, Glutamic acid, Cocoyl Glutamic acid, Stearoyl Glutamic acid.

[0058] Acyl isethionates are the esters of alkanolic acids and isethionic acids with the general formula:



wherein R is a linear or branched, saturated or unsaturated alkyl chain having from about 8 to about 30 carbons. Various non-limiting examples of suitable isethionates include sodium cocoyl isethionate, sodium cocoyl methyl isethionate, sodium isethionate, sodium lauroyl isethionate, sodium lauryl methyl isethionate, sodium methyl isethionate, sodium myristoyl isethionate, sodium oleoyl isethionate.

[0059] Sarcosinates are a class of anionic surfactants formed from the acylation of glycine and have the general structure



wherein R is an alkyl group and X is a cationic salt species, such as Na^+ or TEA^+ . Various non-limiting examples of suitable sarcosinates include lauroyl sarcosine, potassium cocoyl sarcosinate, sodium cocoyl sarcosinate, sodium lauroyl sarcosinate, potassium lauroyl sarcosinate, TEA-lauryl sarcosinate.

[0060] Taurates are derived from taurine by acylation available as salts and generally have the structure



wherein R is a linear or branched, saturated or unsaturated alkyl chain having from about 8 to about 30 carbons. Various non-limiting examples of suitable taurates include sodium methyl lauroyl taurate, sodium methyl cocoyl taurate, sodium methyl oleoyl taurate, potassium cocoyl taurate.

[0061] In one embodiment, the at least one anionic surfactant is chosen from a glutamic acid derivative, an isethionate derivative, an acyl glutamate, an acyl isethionate, a sarcosinate, a taurate, salts thereof, and combinations thereof.

[0062] In another embodiment, the glutamic acid derivative is chosen from sodium cocoyl glutamate, potassium cocoyl glutamate, glutamic acid, sodium lauroyl glutamate, and combinations thereof.

[0063] In another embodiment, the isethionate derivative is chosen from esters of alkanolic acids and isethionic acids or salts thereof.

[0064] In still another embodiment, the isethionate derivative is chosen from sodium lauryl methyl isethionate, sodium cocoyl isethionate, sodium isethionate, sodium lauroyl isethionate, salts thereof, and combinations thereof.

[0065] In a further embodiment, the sarcosinate is chosen from lauroyl sarcosine, sodium cocoyl sarcosinate, sodium lauroyl sarcosinate, potassium cocoyl sarcosinate, and combinations thereof.

[0066] In another embodiment, the taurate is chosen from sodium methyl lauroyl taurate, sodium methyl cocoyl taurate, potassium cocoyl taurate, and combinations thereof.

[0067] In an additional embodiment, the glutamic acid derivative is chosen from sodium cocoyl glutamate, potassium cocoyl glutamate, glutamic acid, sodium lauroyl glutamate, and combinations thereof; and/or the isethionate derivative is chosen from esters of alkanolic acids, isethionic acids, salts thereof, and combinations thereof; and/or the taurate is chosen from sodium methyl lauroyl taurate, sodium methyl cocoyl taurate, potassium cocoyl taurate, and combinations thereof.

[0068] In another embodiment, the anionic surfactant is present in an amount of from about 1 to about 60, about 2 to about 40, or about 5 to about 30, weight percent actives based on a total weight of the core particle and/or encapsulated conditioning composition. In other embodiments, the anionic surfactant is present in an amount of from 0.01 to about 20, about 0.05 to about 20, about 0.1 to about 20, about 0.5 to about 20, about 1 to about 19.5, about 1.5 to about 19, about 2 to about 18.5, about 2.5 to about 18, about 3 to about 17.5, about 3.5 to about 17, about 4 to about 16.5, about 4.5 to about 16, about 5 to about 15.5, about 5.5 to about 15, about 6 to about 14.5, about 6.5 to about 14, about 7 to about 13.5, about 7.5 to about 13, about 8 to about 12.5, about 8.5 to about 12, about 9 to about 11.5, about 9.5 to about 11, about 10 to about 10.5, about 12 to about 13, about 2.5 to about 13, about 0.5 to about 5, or about 5 to about 20, weight percent actives based on a total weight of the core particle and/or conditioning composition. In various embodiments, the at least one anionic surfactant is present in an amount of from about 1 to about 60, about 2 to about 40, about 5 to about 30, about 5 to about 60, about 10 to about 55, about 15 to about 50, about 20 to about 45, about 25 to

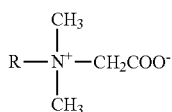
about 40, or about 30 to about 35, weight percent actives based on a total weight percent of the core particle and/or conditioning composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

At Least One Amphoteric Surfactant:

[0069] The composition and/or core particle also optionally includes at least one amphoteric surfactant. In other words, the composition and/or core particle may include at least one amphoteric surfactant or be free of, or include less than about 5, 4, 3, 2, 1, or 0.5, wt % of at least one amphoteric surfactant. For example, only a single amphoteric surfactant may be utilized or a combination of two or more amphoteric surfactants may be utilized.

[0070] Compounds classified as amphoteric surfactants may include both true amphoteric surfactants and zwitterionic compounds where the true charge of the molecule is dependent on the pH of the solution. The at least one amphoteric surfactant is not particularly limited and may be any known in the art.

[0071] The most common class of amphoteric molecules are betaines with a quaternized nitrogen function and a carboxylic function with the following structure



wherein R is a linear or branched, saturated or unsaturated alkyl chain having from about 8 to about 30 carbons. Various non-limiting examples of suitable betaines may include coco betaine, cocamidopropyl betaine, lauryl betaine, cetyl betaine, lauramidopropyl betaine, oleyl betaine, meadowfoamamidopropyl betaine, babassuamidopropyl betaine.

[0072] In one embodiment, the at least one amphoteric surfactant is a betaine having quaternized nitrogen functionality and carboxylic functionality.

[0073] In another embodiment, the at least one amphoteric surfactant is chosen from coco betaine, cocamidopropyl betaine, lauryl betaine, and combinations thereof.

[0074] In various embodiments, the at least one amphoteric surfactant is present in an amount of from about 0 to about 60, about 1 to about 60, about 2 to about 40, or about 5 to about 30, weight percent actives based on a total weight of the core particle and/or encapsulated conditioning composition. In other embodiments, the amphoteric surfactant is present in an amount of from 0.01 to about 20, about 0.05 to about 20, about 0.1 to about 20, about 0.5 to about 20, about 1 to about 19.5, about 1.5 to about 19, about 2 to about 18.5, about 2.5 to about 18, about 3 to about 17.5, about 3.5 to about 17, about 4 to about 16.5, about 4.5 to about 16, about 5 to about 15.5, about 5.5 to about 15, about 6 to about 14.5, about 6.5 to about 14, about 7 to about 13.5, about 7.5 to about 13, about 8 to about 12.5, about 8.5 to about 12, about 9 to about 11.5, about 9.5 to about 11, about 10 to about 10.5, about 12 to about 13, about 2.5 to about 13, about 0.5 to about 5, about 5 to about 20, about 1 to about 5, about 2 to about 4, or about 3 to about 4, weight percent actives based on a total weight of the core particle and/or

conditioning composition. In various embodiments, the at least one amphoteric surfactant is present in an amount of from about 1 to about 60, about 2 to about 40, about 5 to about 30, about 5 to about 60, about 10 to about 55, about 15 to about 50, about 20 to about 45, about 25 to about 40, or about 30 to about 35, weight percent actives based on a total weight percent of the core particle and/or conditioning composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0075] In one embodiment, the at least one anionic surfactant is chosen from a glutamic acid derivative, an isethionate derivative, an acyl glutamate, an acyl isethionate, a sarcosinate, a taurate, salts thereof, and combinations thereof and the at least one amphoteric surfactant is a betaine having quaternized nitrogen functionality and carboxylic functionality. In another embodiment, the at least one amphoteric surfactant is a betaine having quaternized nitrogen functionality and carboxylic functionality.

[0076] The composition and/or core particle may include or be free of a cationic surfactant. In various embodiments, the composition and/or core particle includes less than 5, 4, 3, 2, 1, 0.5, or 0.1, weight percent of a cationic surfactant based on a total weight of the core particle and/or conditioning composition. In other embodiments, the composition and/or core particle is completely free of a cationic surfactant. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

Additives:

[0077] The composition and/or core particle may include, or be free of, one or more additives known in the art such as those described in the Examples. In various embodiments, the core particle further includes a moisturization agent chosen from glycerin, sorbitol, saccharide isomerate, polyquaternium compounds, and combinations thereof and/or a natural exfoliant, a natural extract, and combinations thereof. In various embodiments, the one or more additives may be chosen from Polyquaternium-7, Polyquaternium-39, Polquaternim-47, Coconut shell powder, Apricot seed powder, Jojoba esters, Lavender extract, Aloe extract, shea butter, colloidal oatmeal, and combinations thereof.

[0078] For example, in various embodiments, the one or more additives may be present in an amount of from about 0.01 to about 10, about 1 to about 10, about 2 to about 8, about 3 to about 7, about 4 to about 6, about 5 to about 6, or about 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10, weight percent actives based on a total weight of the core particle and/or encapsulated conditioning composition. In other embodiments, the one or more additives may be present in an amount of from about 0.01 to about 0.09, about 0.02 to about 0.08, about 0.03 to about 0.07, about 0.04 to about 0.06, about 0.05 to about 0.06, about 0.1 to about 0.9, about 0.2 to about 0.8, about 0.3 to about 0.7, about 0.4 to about 0.6, about 0.5 to about 0.6, weight percent actives based on a total weight percent of the core particle and/or encapsulated conditioning composition. The aforementioned weight percent actives may refer to a total weight actives of any one individual additive or may refer to a sum total weight actives of two or more additives. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both

whole and fractional, between and including the aforementioned values, can be utilized herein.

Coating Disposed About at Least a Portion of the Core Particle:

[0079] Relative to the encapsulated composition, the coating (24) typically improves the hardness and durability (e.g. strength and rigidity) of the encapsulated composition (20) while simultaneously reducing friability during transport and use. This reduces shipping and handling costs, preserves the integrity of the encapsulated composition when sold, and minimizes costs associated with replacement of a prematurely fractured product.

[0080] The coating may be, include, consist essentially of, or consist of, one or more of the compounds described below. For example, the coating (24) may be, include, consist essentially of, or consist of, one or more compounds chosen from cellulose polymers, anionic or cationic polymers, vinyl polymers, natural polymers, polysaccharides, copolymers thereof, and combinations thereof. In other embodiments, the coating (24) may be, include, consist essentially of, or consist of, one or more of cellulose based polymers such as hydroxypropyl methyl cellulose (HPMC), hydroxypropyl cellulose (HPC), ethyl cellulose (EC), natural anionic or cationic polymers such as sodium polyitaconate and chitosan (70-95% deacetylated), vinyls, such as polyvinyl alcohol, and acrylate polymers or copolymers, natural derivatives, such as shellac or alginates, polysaccharides, and/or combinations thereof. In other embodiments, the coating (24) may be, include, consist essentially of, or consist of, one or more compounds chosen from polysaccharides, maltodextrin, dehydroxanthan gum, hydrolyzed corn starch, Acacia Senegal Gum, Xanthan Gum, sodium polyitaconate, shellac, and combinations thereof.

[0081] The polysaccharide is not particularly limited and may be any known in the art. In one embodiment, the polysaccharide is pullulan gum which is produced by certain strains of fungus such as *Aureobasidium Pullulans*. Pullulan gum has a unique molecular structure including three α -(1, 4) linked glucose molecules that are repeatedly polymerized by α -(1,6) linkage which leads to a relatively linear molecule. In theory, this unique linear geography provides particular properties in formulation such as high-water solubility and thin film forming that are not exhibited by other polysaccharides. Pullulan gum is generally recognized as safe (GRAS). Because of the linear structure, pullulan resists gelling in solution, unlike other naturally occurring polysaccharides such as xanthan gum. In other embodiments, the polysaccharide is chosen from chitosan, alginates, pectins, guar, xanthan gum, pullulan gum, and combinations thereof. In further embodiments, the coating may be chosen from maltodextrin, dehydroxanthan gum, hydrolyzed corn starch, Acacia Senegal Gum and Xanthan Gum, Sodium Polyitaconate, shellac, and combinations thereof.

[0082] Typically, the compound of the coating (24) is chosen based on its ability to be non-tacky, have high adhesion strength and good water solubility. The compound of the coating (24) is typically naturally based and biodegradable. Further, the compound of the coating (24) typically remains clear and does not discolor with aging.

[0083] In various embodiments, the compound of the coating (24) is present in an amount of from about 1 to about 30, about 2 to about 20, or about 3 to about 15, weight percent actives based on a total weight of the encapsulated

conditioning composition. In other embodiments, the compound of the coating (24) is present in an amount of about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 . . . up to about 30, weight percent actives based on a total weight of the core particle or the encapsulated conditioning composition. In other embodiments, the compound of the coating (24) is present in an amount of from about 1 to about 10, about 2 to about 9, about 3 to about 8, about 4 to about 7, about 5 to about 6, about 5 to about 7, or about 5 to about 8, weight percent actives based on a total weight of the core particle or the encapsulated conditioning composition. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0084] The coating (24) may also include, or be free of, one or more plasticizers such as polyhydric alcohols, propylene glycol or polyethylene glycol (PEG) or glycerol, acetate esters, such as triacetin (glycerol triacetate) or triethyl citrate (TEC) glycerides, such as acetylated monoglycerides, and/or combinations thereof. The plasticizers can reduce a film coating formation temperature and improve the pliability and elasticity of the coating (24).

[0085] The coating (24) may have any thickness but typically has a thickness of from about 10 to about 100, about 20 to about 90, about 30 to about 80, about 40 to about 70, about 50 to about 60, about 20 to about 50, about 25 to about 45, about 30 to about 40, or about 35 to about 40, micrometers. The coating (24) may have varying thicknesses at differing points of the encapsulated composition (20). It is also contemplated that the coating (24) may have a uniform thickness at one or more points of the encapsulated composition (20) or at all or almost all points of the encapsulated composition (20). Alternatively, the coating (24) may be uniform at some points and vary in thickness at other points of the encapsulated composition (20). In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0086] The coating (24) is typically disposed on and in direct contact with the core particle (22). However, it is contemplated that more than one coating may be disposed about the core particle (22). For example, multiples coatings, wherein each one is an embodiment described herein, may be utilized.

[0087] The coating (24) can be disposed about at least a portion of the core particle (22). It is to be understood that the terminology "disposed about" encompasses both partial and complete covering of the core particle (22) by the coating (24). In one embodiment, the coating (24) completely encompasses the core particle (22), as set forth in FIGS. 1-4. In another embodiment, the coating (24) only partially encompasses the core particle (22), as set forth in FIG. 5. The coating (24) is typically an outermost layer of the encapsulated composition (20).

[0088] In various embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle may have a pH of from about 3.5 to about 5, about 3.5 to about 4.5, about 3.5 to about 4, about 4 to about 5.5, about 4 to about 5, about 4 to about 4.5, about 4.5 to about 5.5, about 4.5 to about 5, about 5 to about 5.5, or about 3.5, 3.6, 3.7, 3.8, 3.9, 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5.0, 5.1, 5.2, 5.3, 5.4, or 5.5, e.g. when the encapsulated

conditioning composition and/or the composition and/or the core particle is dissolved as about 10 wt % in about 100 mL of water. Typically, the pH is evaluated using ASTM E70. More specifically, the pH can be measured using an Orion pH meter with a glass calomel electrode, pre calibrated with 2 different pH Buffers of pH 4.00-6.00. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0089] In other embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle may have a viscosity of from about 100 to about 100,000, about 100 to about 2000, about 500 to about 2000, about 1000 to about 1500, about 8000 to about 15,000, about 9,000 to about 14,000, about 10,000 to about 13,000, about 11,000 to about 12,000, about 20,000 to about 80,000, about 25,000 to about 75,000, about 30,000 to about 70,000, about 35,000 to about 65,000, about 40,000 to about 60,000, about 45,000 to about 55,000, or about 50,000 to about 55,000, cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C. Viscosity is measured after mixing with water as described above. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0090] In even further embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle is such that a weight ratio of powder:liquid is from about 1:1 to about 1:3, a pH is from about 3.80 to about 4.80, and a viscosity is from about 3,500 to about 87,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0091] In various embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle produces a flash foam of about zero or less than about 10, 9, 8, 7, 6, 5, 4, 3, 2, or 1, mL when contacted with water at a temperature of about 26 to about 30° C. The terminology "flash foam" is understood by those of skill in the art and is measured using a cylinder shake method. More specifically, 50 ml of a 10 wt % solution of the encapsulated conditioning composition and/or the composition and/or the core particle in water at a temperature of about 26 to about 30° C. is put into a 250 ml graduated cylinder and covered. The volume is measured and recorded as initial volume. The cylinder is then hand shaken 10 times and a total volume of the foam contents is recorded as a volume after 10 times hand shaken. The foam rise volume is calculated as: Flash Foam=(volume after 10 times hand shaken-initial volume) in mL. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

Method of Forming the Composition:

[0092] The composition may be formed by any method in the art. In various embodiments, the core particle (22) and or composition itself, e.g. free flowing powder, is formed by combining the tapioca starch, the optional potato starch, the optional corn starch, the at least one anionic surfactant, and

the optional at least one amphoteric surfactant, and any one or more optional additives described herein. These components may be combined by any method in the art. For example, the aforementioned components may be combined to form a mixture which can be added to a die and compressed to form the core particle (22), e.g. in the shape of a cube. To form the core particle (22), the mixture is typically compressed at a pressure of from 500 to 100,000 lbs./in². After formation, the core particle (22) may be coated with the coating (24). In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0093] The coating (24) may be disposed on the core particle (22) by any method known in the art, e.g. spraying a solution onto the core particle (22) to form the encapsulated conditioning composition (20). The step of spraying may be further defined as any type of spraying known in the art. In one embodiment, the step of spraying is further defined as pan coating. The pan coating of this invention typically involves manipulation of a variety of parameters including, but not limited to, relative humidity, coating room temperature, pan diameter, pan speed, pan depth, pan brim volume, pan load, shape and size of the core particle (22), baffle efficiency, number of spray guns, acceleration due to gravity, spray rate, inlet airflow, inlet temperature, air properties, exhaust temperature, atomizing air pressure, solution properties, gun-to-bed distance, nozzle type and size, and coating time. One or more of these parameters may be adjusted and/or customized by those of skill in the art.

[0094] In one embodiment, a cube that is the core particle (22) is formed and then crumbled or otherwise broken into a pressed powder. The pressed powder can then be coated. Alternatively, the cube that is the core particle (22) may itself be coated.

Process for Conditioning Hair or Skin:

[0095] This disclosure also provides a process for conditioning hair or skin. This method includes the step of applying the encapsulated conditioning composition and/or the composition and/or the core particle, as described herein, to hair or skin. The step of applying may be further defined as any type of applying known in the art. For example, the step of applying may be further defined as applying as a conditioner, lotion, gel, etc. Typically, the encapsulated conditioning composition and/or the composition and/or the core particle is partially or completely crushed and mixed with water and then applied to the hair and/or skin by the consumer.

Additional Embodiments

[0096] In various embodiments, the core particle or non-encapsulated composition, e.g. free flowing powder, includes, is, consists essentially of, or consists of the tapioca starch, the optional potato starch, the optional corn starch, the at least one anionic surfactant, and the optional at least one amphoteric surfactant, and any one or more optional additives described herein. In related embodiments, the coating, if included, may be, include, consist essentially of, or consist of, the polysaccharide.

[0097] In various embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle may include, be, consist essentially of, or consist of (with optional coating):

- [0098] Tapioca Starch: about 65 to about 70 wt. %;
- [0099] Corn Starch: about 2 to about 5 wt. %;
- [0100] Sodium Methyl Oleoyl Taurate: about 3 wt. %;
- [0101] Sodium Cocoyl Isothionate: about 0 to 2 or about 2, wt. %;
- [0102] Sodium Cocoyl Glutamate: about 0 to about 0.8, or about 0.8, wt. %;
- [0103] Guar HP Chloride: about 0 to about 1.5, or about 1.5, wt. %;
- [0104] Hydrogenated Ethyl/Hexyl Olivat; about 0 to about 3, or about 3, wt. %;
- [0105] DL-Panthenol: about 0 to about 3 or about 0.5 to about 3, wt. %;
- [0106] L-Sodium PCA: about 0 to about 5, or about 5, wt. %;
- [0107] Cellulose Gum; about 0 to about 5, or about 2.5 to about 5, wt. %;
- [0108] Quaternium—98; about 0 to about 10, or about 10, wt. %;
- [0109] Hydrolyzed Rice Protein: about 0 to about 1, or about 1, wt. %;
- [0110] Hydrolyzed Adansonia Digitata Seed Extract: about 0 to about 1, or about 1, wt. %;
- [0111] Citric Acid Anhydrous: about 0 to about 1.3, or about 1.3, wt. %;
- [0112] Fragrance: about 0 to about 0.5, or about 0.5, wt. %; and/or
- [0113] Water about 0 to about 12, or about 0.7 to about 12, or about 2 to about 12, wt. %
- [0114] In similar embodiments, such compositions have a viscosity of from about 8,000 to about 12,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.
- [0115] In other embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle may include, be, consist essentially of, or consist of (with optional coating):
 - [0116] Tapioca Starch: about 30 to about 60 wt. %;
 - [0117] Potato Starch: about 0 to about 30 or about 5 to about 30 wt. %;
 - [0118] Cetyl Alcohol, Behentrimonium Chloride, Cocoamidopropyl Betaine and Sorbitan Laurate: about 0 to about 10 or about 5 to about 10 wt. %;
 - [0119] Corn Starch: about 0 to about 2 or about 2 wt. %;
 - [0120] Sodium Methyl Oleoyl Taurate: about 0 to about 3 or about 3 wt. %;
 - [0121] Guar HP Chloride: about 0 to about 1.5 or about 1.5 wt. %;
 - [0122] Hydrogenated Ethyl/Hexyl Olivat: about 0 to about 3 or about 3 wt. %;
 - [0123] DL-Panthenol: about 0 to about 3 or about 3 wt. %;
 - [0124] L-Sodium PCA: about 0 to about 5 or about 5 wt. %;
 - [0125] Cellulose Gum: about 0 to about 2.5 or about 2.5 wt. %;
 - [0126] Quaternium—98: about 0 to about 10 or about 5 to about 10 wt. %;
 - [0127] Hydrolyzed Rice Protein: about 0 to about or about 1 wt. %;
 - [0128] Hydrolyzed Adansonia Digitata Seed Extract: about 0 to about 1 or about 1 wt. %;
 - [0129] Citric Acid Anhydrous: about 0 to about 1.3 or about 1.3 wt. %;
 - [0130] Fragrance: about 0 to about 1 or about 0.7 to about 1 wt. %;
 - [0131] Liquid and/or Water: about 0 to about 0.8, or about 0.7 to about 0.8 wt. %.
- [0132] In related embodiments, such compositions have the following properties:
 - [0133] At 1:2 ratio of powder to liquid, 3,600 cps, pH 4.34;
 - [0134] At 1:1.5 ratio of powder to liquid, 11,600 cps, pH 4.38;
 - [0135] At 1:1 ratio of powder to liquid, 87,000 cps, pH 4.18;
 wherein Viscosity measurements are determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C., the pH measured according to the method describe above, and after three days shows no change. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.
- [0136] In still other embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle may include, be, consist essentially of, or consist of (with optional coating):
 - [0137] Tapioca Starch: about 60 wt. %;
 - [0138] Bentonite: about 0 to about 10, or about 5 to about 10, or about 8 to about 10 wt. %;
 - [0139] Natural Zeolite: about 0 to about 10 or about 10 wt. %;
 - [0140] Cetyl Alcohol, Behentrimonium Chloride, Cocoamidopropyl Betaine and Sorbitan Laurate: about 0 to about 5 or about 5 wt. %;
 - [0141] Corn Starch: about 0 to about 2 or about 2 wt. %;
 - [0142] Sodium Methyl Oleoyl Taurate: about 0 to about 3 or about 3 wt. %;
 - [0143] Guar HP Chloride about 0 to about 1.5 or about 1.5 wt. %;
 - [0144] Hydrogenated Ethyl/Hexyl Olivat: about 0 to about 3 or about 3 wt. %;
 - [0145] DL-Panthenol: about 0 to about 3 or about 3 wt. %;
 - [0146] L-Sodium PCA: about 0 to about 5 or about 2.5 to about 5 wt. %;
 - [0147] Cellulose Gum: about 0 to about 2.5 or about 2.5 wt. %;
 - [0148] Quaternium—98: about 0 to about 5 or about 5 wt. %;
 - [0149] Hydrolyzed Rice Protein: about 0 to about 1 or about 0.1 to about 1 wt. %;
 - [0150] Hydrolyzed Adansonia Digitata Seed Extract: about 0 to about 1 or about 0.1 to about 1 wt. %;
 - [0151] Citric Acid Anhydrous: about 0 to about 1.3 or about 1.3 wt. %;
 - [0152] Fragrance: about 0 to about 1 or about 1; and/or
 - [0153] Liquid and/or Water: about 0 to about 0.7 or about 0.2 to about 0.7 wt. %. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0154] In still other embodiments, the encapsulated conditioning composition and/or the composition and/or the core particle may include, be, consist essentially of, or consist of (with optional coating):

- [0155] Tapioca Starch: about 60 to about 65 wt. %;
- [0156] Potato Starch: about 0 to about 4 or about 4 wt. %;
- [0157] Corn Starch: about 0 to about 5 or about 5 wt. %;
- [0158] Maltodextrin: about 0 to about 5 or about 5 wt. %;
- [0159] Bentonite: about 0 to about 5 or about 5 wt. %;
- [0160] Betaine: about 0 to about 5 or about 3 to about 5 wt. %;
- [0161] Sodium Lauroyl Glutamate: about 0 to about 3 or about 3 wt. %;
- [0162] Guar HP Chloride: about 0 to about 1.5 or about 1.5 wt. %;
- [0163] Bio saccharide gum-1: about 0 to about 0.2 or about 0.2 wt. %;
- [0164] Citric Acid Anhydrous: about 0 to about 1.3 or about 1.3 wt. %;
- [0165] Hydrogenated Ethyl/Hexyl Olivat: about 0 to about 6 or about 6 wt. %;
- [0166] Caprylic/Capric Triglyceride: about 0 to about 2 or about 2 wt. %;
- [0167] PCA Glyceryl Oleate: about 0 to about 1 or about 1 wt. %;
- [0168] Fragrance: about 0 to about 1 or about 1 wt. %;
- [0169] Avocado Oil: about 0 to about 0.5 or about 0.5 wt. %;
- [0170] L-Sodium PCA: about 0 to about 5 or about 2.5 to about 5 wt. %;
- [0171] Glycerine: about 0 to about 2 or about 2 wt. %;
- [0172] Hydrolyzed Rice Protein: about 0 to about 0.5 or about 0.1 to about 0.5 wt. %;
- [0173] Hydrolyzed Adansonia Digitata Seed Extract: about 0 to about 0.2 or about 0.1 to about 0.2 wt. %; and/or
- [0174] Liquid and/or Water: about 0 to about 0.3 or about 0.3 wt. %.

[0175] In similar embodiments, such compositions have a viscosity of from about 12,000 to about 20,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C. Other embodiments have a pH of about 4 to about 4.3 when mixed at a 1:1 ratio of powder to liquid, as determined by the method described above. In various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, can be utilized herein.

[0176] The conditioning composition can disaggregate or disintegrate easily, and dissolution in water is typically rapid. The conditioning composition is typically easy to mix with water. After application, good persistence of a fragrance is typically obtained and, when the composition is applied to the skin, the skin is soft.

[0177] This disclosure also provides a process for conditioning keratin materials such as the skin, including the scalp, keratin fibers such as the eyelashes or the hair, and/or the lips, wherein the conditioning composition is applied to the keratin materials. The term “keratin material” especially means the skin, the scalp, keratin fibers such as the eyelashes, the eyebrows, head hair, bodily hair, the nails, and

mucous membranes such as the lips, and more particularly the skin (body, face, area around the eyes, eyelids).

[0178] The conditioning composition can be used for topical application and thus can include a physiologically acceptable medium. The term “physiologically acceptable medium” means a medium that is compatible with keratin materials.

[0179] In still other embodiments, the composition or core particle may include, be, consist essentially of, or consist of (with optional coating), one or more of the following:

Component	Approximate Weight %
Starch	10-80
Absorbent-Filler Clays	0-30; 1-30
Cellulose Thickener	0-10; 0.1-10
Polysaccharide Gum	0-10; 0.1-10
Surfactant 1	0-10; 0.1-10
Surfactant 2	0-10; 0.1-10
Cold Process Emulsifier/Conditioner	0-10; 0.1-10
Cationic Polymer	0-5; 0.1-5
Humectant	0-10; 0.1-10
Conditioner/Detangler	0-15; 0.1-15
pH adjuster	0-3; 0.5- 3
Essential Oil	0-5; 0.1-5
Protein	0-3; 0.5-3
Fortifying Extracts	0-2; 0.5-2
Amino Acids	0-5; 0.1-5
Fragrance	0-2; 0.5-2
Liquid and/or Water	0-8; 0.1-8

[0180] In various embodiments, the starch may be chosen from tapioca, potato, corn, corn modified, rice, pectin, barley, and combinations thereof.

[0181] In other embodiments, the absorbent-filler clays may be chosen from hydrophilic layered silicates such as Bentonites (Gelwhite-H, Gelwhite-GPXR, Beraclay), Kaolin, Natural Zeolites, Veegum, and combinations thereof.

[0182] In other embodiments, the cellulose rheology modifiers may be chosen from hydroxyethyl cellulose, hydroxypropyl methyl cellulose, ethyl cellulose, carboxy methyl cellulose and gum cellulose, and combinations thereof.

[0183] In other embodiments, the polysaccharide gums may be chosen from Xanthum, Guar, Arabic, Amylose, and combinations thereof.

[0184] In other embodiments, surfactant 1 may be chosen from anionic, cationic, amphoteric surfactants such as SLS, SLES, ALS, ALES, and combinations thereof.

[0185] In other embodiments, surfactant 2 may be chosen from cocoamidopropyl betaine, cocoamidopropyl hydroxy sultaine, and combinations thereof.

[0186] In other embodiments, the cold process self-emulsifier/conditioner may be chosen from Jeequat® NDSC (cetyl alcohol, behentrimonium chloride, cocamidopropyl betaine, sorbitan laurate); methyl gluceth-20; polyglyceryl esters, Durosoft PK-SG (Polyglyceryl-4 ester); Sucrose esters, Sisterna SP70-C and Sisterna PS750-C, and combinations thereof.

[0187] In other embodiments, the cationic polymer may be chosen from guar hydroxypropyltrimonium chloride (GHPTC), polyquaternium 4, polyquaternium 7 and polyquaternium 10, and combinations thereof.

[0188] In other embodiments, the humectant may be chosen from glycerine, propylene glycol, dipropylene glycol, butylene glycol, 1-sodium PCA, methyl gluceth-20, panthe-

nol, sorbitol, fructose, aloe, hyaluronic acid, urea, lecithin, ammonium lactate, polyethylene glycols, glyceryl triacetate, and combinations thereof.

[0189] In other embodiments, the conditioner may be chosen from Panthenol, Tegobetaine, Quaternium-98, Quaternium-100, Quaternium 15, Quaternium 18, Quaternium 80, Behentrimonium Methosulfate/Chloride, and combinations thereof.

[0190] In other embodiments, the pH Adjuster may be chosen from Citric acid, glycolic acid, lactic acid, acetic acid, and combinations thereof.

[0191] In other embodiments, the essential oils may be chosen from avocado oil, jojoba oil, argan oil, almond oil, sunflower oil, coconut oil, sunflower oil, soybean oil, olive oil, peppermint oil, cedarwood oil, tea tree oil, marula oil, hydrogenated ethyl/hexyl olivate, and combinations thereof.

[0192] In other embodiments, the proteins may be chosen from wheat, rice, soy, keratin, cashmere, and combinations thereof.

[0193] In other embodiments, the fortifying extracts may be chosen from Horsetail, Nettle, Willow bark, and combinations thereof.

[0194] In various non-limiting embodiments, all combinations of the aforementioned components are hereby expressly contemplated for use herein. Moreover, in other various non-limiting embodiments, it is contemplated that all values and ranges of values, both whole and fractional, between and including the aforementioned values, for any one or more of the aforementioned components, and all combinations thereof, can be utilized herein.

[0195] It is contemplated that all weights described herein may be on the basis of a core particle, a powder, an encapsulated particle, or a composition as a whole. It is contemplated that any one or more weight percents described in this disclosure may be alternatively described as weight percent actives. Relative to all descriptions of liquid and/or water herein, each amount may be alternatively described as a “total amount.” Typically, the terminology “total amount” refers to a total amount of liquid and/or water present in the composition from all components, i.e., not simply liquid and/or water added independently from, for example, the surfactant component. An independent source of liquid or water, such as DI water, may be used to dilute the composition. This liquid or water may be independent from any liquid and/or water present in the composition as originating from one or more components. In other words, the composition can include liquids and/or water originating from the components themselves. However, to further dilute the composition, the independent liquid and/or water source may be used.

[0196] In still other embodiments, the composition may be described as a waterless hair care, styling and treatment cosmetic composition. The composition may be described as a mixed powder that includes about 0-20% liquid that may be water, oils and bonding ingredients. The composition may be a free flowing powder or pressed powder of different shapes and sizes. The composition may be activated in situ in contact with water representing maximum freshness and efficacy versus liquid products. Furthermore, the composition may have better stability and better efficacy due to higher stability of functional ingredients in the composition powder form. Vitamins, oils, proteins, etc. tend to be preserved in the powder form where these ingredients will have limited efficacy in the liquid form with time. The composi-

tion requires minimum space, is sustainable (e.g. does not require plastic packaging), and produces minimum waste (e.g. in individual solid doses). The composition can include a mixture of starches including corn, potato, tapioca, barley, rice as the primary carrier ingredients, primary anionic or nonionic surfactants, secondary surfactants, anti-foam agents, gums, thickeners, conditioning agents, oils, silicone (or may be silicone free), fatty alcohols, quats, humectants, pH adjusters, sun blockers, colorants and preservatives.

EXAMPLES

[0197] The following compositions are created and evaluated as follows wherein values are % (wt/wt) unless otherwise indicated:

Composition	1	2	3	4
Tapioca Starch	70	65	65	65
(Tapioca Pure From Nouryon)				
Corn Starch Modified	5	5	2	2
Sodium Methyl Oleoyl Taurate			3	3
Sodium Cocoyl Isothionate	2	2		
(Pure act I-78 Innospec)				
Sodium Cocoyl Glutamate	0.8	0.8		
Guar HP Chloride	1.5	1.5	1.5	1.5
Hydrogenated Ethyl/Hexyl Oliviate	3	3	3	3
DL-Panthenol	0.5	0.5	3	3
L-Sodium PCA	5	5	5	5
Cellulose Gum		5	2.5	2.5
Quaternium - 98			10	10
Hydrolyzed Rice Protein			1	1
Hydrolyzed Adansonia			1	1
Digitata Seed Extract				
Citric Acid Anhydrous				1.3
Fragrance	0.5	0.5		
Water	11.7	11.7	2	0.7

[0198] The Compositions 1, 2, 3 and 4 had viscosities of about 8,000-12,000 cps after mixing with water as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C.

Composition	5	6	7	8
Tapioca Starch	60	55	30	60
(Tapioca Pure From Nouryon)				
Potato Starch			30	5
(TeraSorb From Actera)				
Cetyl Alcohol,	5	10	6	6
Behentrimonium Chloride,				
Cocoamidopropyl				
Betaine and Sorbitan Laurate				
Corn Starch Modified	2	2	2	2
Sodium Methyl Oleoyl Taurate	3	3	3	3
Guar HP Chloride	1.5	1.5	1.5	1.5
Hydrogenated Ethyl/Hexyl Oliviate	3	3	3	3
DL-Panthenol	3	3	3	3
L-Sodium PCA	5	5	5	5
Cellulose Gum	2.5	2.5	2.5	2.5
Quaternium—98	10	10	10	5
Hydrolyzed Rice Protein	1	1	1	1
Hydrolyzed Adansonia	1	1	1	1
Digitata Seed Extract				
Citric Acid Anhydrous	1.30	1.30	1.30	1.3
Fragrance	1	1	0.7	1
Water	0.7	0.7	0	0.8

[0199] The Compositions 5-8 have excellent effects on hair. Relative to Composition 5, when mixed with water at different powder to liquid ratios, the following was observed.

[0200] At 1:2 ratio of powder to liquid, 3,600 cps, pH 4.34;

[0201] At 1:1.5 ratio of powder to liquid, 11,600 cps, pH 4.38;

[0202] At 1:1 ratio of powder to liquid, 87,000 cps, pH 4.18;

wherein Viscosity measurements are determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C., and the pH measured according to the method describe above. After three days no change was observed.

[0203] Composition 5 was also evaluated in a salon on medium hair length of five models. The evaluation data of attributes on hair is tabulated below. The scoring scale is from 0-5 as generated using trained observers wherein 5 is excellent.

Consistency	4
Product Spreadability	5
Distribution	4
Ease of rinsing	5
Feel of hair during rinse off	4
Smell	5
Detangling of wet hair	4
Combability of wet hair	5
Feel of wet hair	4
Blow drying	5
Ease of styling	5
Drying time	5
Combability of dry hair	5
Feel of dry hair	4
Feel of hair tips	4
Static control	4
Shine	5

[0204] The Compositions 5-8 can be easily molded into any shape. To preserve the integrity of the pressed powder, a coating of 3.5% Amaze SP (Sodium Polyitaconate) and 1% glycerine solution in water is applied in a spray format and dried. The coating smooths the edges of the pressed powder and provides humidity resistance.

Composition	9	10	11	12
Tapioca Starch	60	60	60	60
(Tapioca Pure From Nouryon)				
Bentonite (Gelwhite-H)	5	8	10	
Natural Zeolite				10
Cetyl Alcohol,	5	5	5	5
Behentrimonium Chloride,				
Cocamidopropyl Betaine				
and Sorbitan Laurate				
Corn Starch Modified	2	2	2	2
Sodium Methyl Oleoyl Taurate	3	3	3	3
Guar HP Chloride	1.5	1.5	1.5	1.5
Hydrogenated Ethyl/Hexyl Olivat	3	3	3	3
DL-Panthenol	3	3	3	3
L-Sodium PC A	5	2.5	2.5	2.5
Cellulose Gum	2.5	2.5	2.5	2.5
Quaternium - 98	5	5	5	5
Hydrolyzed Rice Protein	1	1	0.1	0.1
Hydrolyzed Adansonia	1	1	0.1	0.1
Digitata Seed Extract				

-continued

Composition	9	10	11	12
Citric Acid Anhydrous	1.30	1.30	1.30	1.30
Fragrance	1	1	1	1
Water	0.7	0.2	0	0

[0205] Compositions 9-12 are excellent free flowing powders where lumping at high humidity is minimal.

Composition	13	14	15	16
Tapioca Starch	65	65	65	60
(Tapioca Pure From Nouryon)				
Potato Starch	4	4	4	4
Corn Starch	5	5	5	5
Maltodextrin			5	
Bentonite				5
Betaine (Tego Natural Betaine)	3	3	3	5
Sodium Lauroyl Glutamate	3	3	3	3
Guar HP Chloride	1.5	1.5	1.5	1.5
Bio saccharide gum-1	0.20	0.20	0.20	0.20
Citric Acid Anhydrous	1.30	1.30	1.30	1.30
Hydrogenated Ethyl/Hexyl Olivat	6	6	6	6
Caprylic/Capric Triglyceride	2	2	2	2
PCA Glyceryl Oleate		1	1	1
Fragrance	1	1	1	1
Avocado Oil pressed	0.5	0.5	0.5	0.5
L-Sodium PCA	5	5	2.5	2.5
Glycerine	2	2	2	2
Hydrolyzed Rice Protein	0.5	0.5	0.1	0.1
Hydrolyzed Adansonia	0.2	0.2	0.1	0.1
Digitata Seed Extract				
Water	0.3	0.3	0	0

[0206] The Compositions 13-16 have a viscosity of from about 12,000 to about 20,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C. They also have a pH of about 4 to about 4.3 when mixed at a 1:1 ratio of powder to liquid, as determined by the method described above.

[0207] Various Compositions were evaluated to determine agglomeration or clumping after storage at about 60-65% relative humidity after about 15 days at ambient temperature. The results are set forth in FIGS. 13-16, representing Compositions 6, 11, 12, and 16, respectively. The results show that agglomeration or clumping is significantly less for Compositions 11, 12, and 16.

[0208] Compositions 13-16 were also evaluated in a salon on medium hair length of five models. The evaluation data of attributes on both non-bleached and bleached hair is tabulated below. The scoring scale is from 0-5 as generated using trained observers wherein 5 is excellent. Typically, the attributes set forth below are determined as follows:

[0209] Consistency is evaluated as no variation with time;

[0210] Product Spreadability is evaluated as spread over an area;

[0211] Distribution is evaluated as the product uniformity on hair from root to ends;

[0212] Ease of Rinsing is evaluated as the level of product residue on hair after brief time of water rinsing;

[0213] Feel of Hair During Rinse Off is evaluated by touching wet hair from root to ends;

[0214] Smell is evaluated as the level of odor perceived by smelling the hair;

- [0215] Detangling of Wet Hair is evaluated as degree of wet hair conditioning;
- [0216] Combability of Wet Hair is evaluated as degree of wet hair conditioning;
- [0217] Feel of Wet Hair is evaluated as touching damp towel dry hair fibers by gliding the fibers between the fingers from root to ends;
- [0218] Blow drying is evaluated as ability to remove water;
- [0219] Ease of Styling is evaluated as the level of designing the shape of an object;
- [0220] Drying time is evaluated as time required to dry hair;
- [0221] Combability of dry hair is evaluated as conditioning of dry hair;
- [0222] Feel of dry hair is evaluated as texture evaluation;
- [0223] Feel of hair tips is evaluated as condition or damage of hair;
- [0224] Static control is evaluated as ability to control electrostatic forces; and
- [0225] Shine is evaluated as reflection of light,
- [0226] wherein each is as understood by those of skill in the art.

Evaluation scores are as follows: 0=1=Poor; 2=Fair; 3=Good; 4=Very Good; and 5=Excellent.

Evaluation Attributes Of Compositions 13-16 On Non-Bleached	13	14	15	16
Consistency	4	4	4	4
Product Spreadability	4	4	4	4
Distribution	4	4	4	4
Ease Of Rinsing	5	4	4	5
Feel Of Hair During Rinse Off	4	5	5	5
Smell	4	4	4	4
Detangling Of Wet Hair	4	4	5	5
Combability Of Wet Hair	4	5	5	5
Feel Of Wet Hair	4	4	5	5
Blow Drying	4	4	4	4
Ease Of Styling	5	5	5	5
Drying Time	5	5	5	5
Combability Of Dry Hair	4	4	5	5
Feel Of Dry Hair	4	4	4	5
Feel Of Hair Tips	4	4	4	5
Static Control	4	4	4	5
Shine	4	4	4	5

Evaluation Attributes of Compositions 13-16 on Bleached Hair	13	14	15	16
Consistency	4	4	4	4
Product Spreadability	4	5	5	5
Distribution	4	4	5	5
Ease Of Rinsing	5	5	4	5
Feel Of Hair During Rinse Off	4	5	5	5
Smell	4	4	4	4
Detangling Of Wet Hair	4	4	5	5
Combability Of Wet Hair	4	5	5	5
Feel Of Wet Hair	4	5	5	5
Blow Drying	4	4	4	4
Ease Of Styling	5	5	5	5
Drying Time	5	5	5	5
Combability Of Dry Hair	4	4	5	5
Feel Of Dry Hair	4	4	5	5
Feel Of Hair Tips	4	4	4	5
Static Control	4	4	4	5
Shine	4	4	4	5

[0227] Based on the above data, the conditioner imparts very good wet and dry conditioning properties on normal and chemically treated hair. The unique attributes of the conditioner on hair are exceptional styling with reduced drying time. The ability and ease of styling hair is surprising to those of skill in the art. Furthermore, the ease of rinsing the conditioner is significantly superior to conventional conditioners that can leave the hair greasy and dull with a coating.

[0228] In various non-limiting embodiments, all combinations of the aforementioned components are herein expressly contemplated for use even if those components are not described together in any one paragraph. While at least one exemplary embodiment has been presented in the foregoing detailed description, it should be appreciated that a vast number of variations exist. It should also be appreciated that the exemplary embodiment or exemplary embodiments are only examples, and are not intended to limit the scope, applicability, or configuration in any way. Rather, the foregoing detailed description will provide those skilled in the art with a convenient road map for implementing an exemplary embodiment. It being understood that various changes may be made in the function and arrangement of elements described in an exemplary embodiment without departing from the scope as set forth in the appended claims.

What is claimed is:

1. An encapsulated conditioning composition that is free of talc and comprises:

A. a core particle that is a powder and comprises;

- (1) tapioca starch,
- (2) optionally potato starch,
- (3) optionally corn starch,
- (4) at least one anionic surfactant, and
- (5) optionally at least one amphoteric surfactant; and

B. a coating disposed about at least a portion of said core particle and comprising a compound chosen from cellulose polymers, anionic or cationic polymers, vinyl polymers, natural polymers, polysaccharides, copolymers thereof, and combinations thereof,

wherein said conditioning composition comprises from about 0 to about 25 percent by weight of liquid, has a pH of about 3.5 to about 5 when mixed with water at about 10 wt % and produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C.

2. The encapsulated conditioning composition of claim 1, wherein a total amount of (1)-(3) is from about 10 to about 80 weight percent based on a total weight of said core particle.

3. The encapsulated conditioning composition of claim 1, wherein said tapioca starch is present in an amount of about 30 to about 70 weight percent based on a total weight of said core particle.

4. The encapsulated conditioning composition of claim 1, wherein said tapioca starch is present in an amount of about 60 to about 70 weight percent based on a total weight of said core particle.

5. The encapsulated conditioning composition of claim 1, wherein said potato starch is present in an amount of about 0 to about 30 weight percent based on a total weight of said core particle.

6. The encapsulated conditioning composition of claim 1, wherein said corn starch is present in an amount of about 0 to about 5 weight percent based on a total weight of said core particle.

7. The encapsulated conditioning composition of claim 1, wherein

said at least one anionic surfactant is chosen from a glutamic acid derivative, an isethionate derivative, an acyl glutamate, an acyl isethionate, a sarcosinate, a taurate, salts thereof, and combinations thereof; and said at least one amphoteric surfactant is a betaine having quaternized nitrogen functionality and carboxylic functionality.

8. The encapsulated conditioning composition of claim 7, wherein

said glutamic acid derivative is chosen from sodium cocoyl glutamate, potassium cocoyl glutamate, glutamic acid, sodium lauroyl glutamate, and combinations thereof; and/or

said isethionate derivative is chosen from esters of alkanolic acids, isethionic acids, salts thereof, and combinations thereof; and/or

said taurate is chosen from sodium methyl lauroyl taurate, sodium methyl cocoyl taurate, potassium cocoyl taurate, and combinations thereof.

9. The encapsulated conditioning composition of claim 1, wherein a weight ratio of powder:liquid is from about 1:1 to about 1:3.

10. The encapsulated conditioning composition of claim 1, wherein a weight ratio of powder:liquid from about 1:1 to about 1:3, a pH is from about 3.80 to about 4.80, and a viscosity is from about 3,500 to about 87,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C.

11. A non-encapsulated conditioning composition that is a powder, is free of talc, and comprises:

- (1) tapioca starch,
- (2) optionally potato starch,
- (3) optionally corn starch,
- (4) at least one anionic surfactant, and
- (5) optionally at least one amphoteric surfactant; and wherein said conditioning composition comprises from about 0 to about 18 percent by weight of liquid, has a pH of about 3.5 to about 5 when mixed with water at about 10 wt % and produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C.

12. The encapsulated conditioning composition of claim 11, wherein a total amount of (1)-(3) is from about 10 to about 80 weight percent based on a total weight of said core particle.

13. The encapsulated conditioning composition of claim 11, wherein said tapioca starch is present in an amount of about 30 to about 70 weight percent based on a total weight of said core particle.

14. The encapsulated conditioning composition of claim 11, wherein said tapioca starch is present in an amount of about 60 to about 70 weight percent based on a total weight of said core particle.

15. The encapsulated conditioning composition of claim 11, wherein said potato starch is present in an amount of about 0 to about 30 weight percent based on a total weight of said core particle.

16. The encapsulated conditioning composition of claim 11, wherein said corn starch is present in an amount of about 0 to about 5 weight percent based on a total weight of said core particle.

17. The encapsulated conditioning composition of claim 11, wherein

said at least one anionic surfactant is chosen from a glutamic acid derivative, an isethionate derivative, an acyl glutamate, an acyl isethionate, a sarcosinate, a taurate, salts thereof, and combinations thereof; and

said at least one amphoteric surfactant is a betaine having quaternized nitrogen functionality and carboxylic functionality.

18. The encapsulated conditioning composition of claim 17, wherein

said glutamic acid derivative is chosen from sodium cocoyl glutamate, potassium cocoyl glutamate, glutamic acid, sodium lauroyl glutamate, and combinations thereof; and/or

said isethionate derivative is chosen from esters of alkanolic acids, isethionic acids, salts thereof, and combinations thereof; and/or

said taurate is chosen from sodium methyl lauroyl taurate, sodium methyl cocoyl taurate, potassium cocoyl taurate, and combinations thereof.

19. The encapsulated conditioning composition of claim 11, wherein a weight ratio of powder:liquid is from about 1:1 to about 1:3.

20. A conditioning composition that is free of talc and comprises:

a powder comprising:

- (1) tapioca starch present in an amount of about 60 to about 65 weight percent based on a total weight of said powder;
- (2) potato starch present in an amount of about 3 to about 5 weight percent based on a total weight of said powder;
- (3) corn starch present in an amount of about 4 to about 6 weight percent based on a total weight of said powder;
- (4) at least one anionic surfactant that is a glutamate and that is present in an amount of about 2 to about 4 weight percent based on a total weight of said powder; and
- (5) at least one amphoteric surfactant that is a betaine and that is present in an amount of about 3 to about 5 weight percent based on a total weight of said powder;

wherein said powder comprises from about 0 to about 5 percent by weight of liquid, has a pH of about 3.80 to about 4.80 when mixed with water at about 10 wt % and has a viscosity when dissolved as 10 wt % in about 100 mL water of about 12,000 to about 20,000 cps as determined using a Brookfield Gel Timer DV2T Viscometer, RV, Spindle #6, at about 6 rpm for about 60 seconds at about 28° C., and

wherein said powder produces a flash foam of less than about 10 ml when contacted with water at a temperature of about 26 to about 30° C.