Title: METHOD AND FORMULATION FOR COSMETIC COMPOSITIONS

Abstract: One or more embodiments of the invention comprise a method for making an activated solution for use in a variety of skin care products, the method comprising the steps of: providing a water; adding desired materials to the water as a mixture; heating the mixture to release water-soluble substances from the materials and enable the therapeutic effects of the materials; and filtering the mixture to produce an activated solution for use in skin care products. The process creates an activated solution that simulates the composition of natural hot springs water, the solution intended for use as a composition in and/or as part of manufacturing a process to produce a cosmetic composition and other skin care products.
METHODS AND FORMULATIONS FOR
PERSONAL CARE COMPOSITIONS

RELATED APPLICATIONS
This application claims benefit of United States Provisional Patent Application Serial No. 60/948,181 filed 5 July 2007, which is hereby incorporated herein by reference.

BACKGROUND OF THE INVENTION
FIELD OF THE INVENTION

[001] Embodiments of the invention described herein pertain to the field of cosmetic formulation. More particularly, but not by way of limitation, one or more embodiments of the invention relates to methods and formulations for cosmetic compositions created with an activated mineral solution made using thermal mineralization.

DESCRIPTION OF THE RELATED ART

[002] Since early times, people have enjoyed taking a bath in mineral hot springs for their refreshing, relaxing effect on the human body. It has long been known that the ingredients in mineral hot springs, particularly the mineral salts, have various therapeutic effects on human body, especially the skin. In Japan, for example, men and women have been soaking in what are considered sacred waters for relaxation, to heal the skin and body and to escape the pressures of daily life for thousands of years.

[003] There is scientific basis for the claims of therapeutic effects of soaking in mineral hot springs. It is well known in the cosmetic arts, for example, that certain minerals and trace elements, such as for example zinc, copper, iron, cobalt, manganese, silicium and magnesium, are essential for healthy skin. For example, zinc plays an important role in the protein synthesis of the skin. Twenty percent (20%) of the zinc in the human body is found in the skin. Copper is known to have a high importance in the structural development of the skin's collagen and elastin, in addition to its well-known positive
effect on blood count. When these elements are not present in the skin in a sufficient amount the solubility of collagen and elastin increase and may cause the skin to lose its elasticity. Manganese and magnesium take part in a number of enzyme reactions in the skin such as collagen synthesis; their effects on the activity of the enzymes regulating the nucleic acid metabolism are also significant. Silicium plays an important role in the structural development of both the collagenous and cartilaginous tissues. A number of other trace elements, such as selenium, sulphur, sulphides, vanadium and nickel also play important roles in the healthy appearance of the skin.

[004] These trace mineral elements are clearly beneficial and in some instances essential to healthy skin. However, not everyone has time to take a long soak in a mineral bath, and even fewer can travel to a natural mineral hot spring for such a treatment. A more practical alternative is to bring important trace elements to the skin is through properly formulated skin care products. However, producing skin care products with the proper formulation of trace minerals in an active form that makes the minerals available to the skin of user poses numerous challenges.

[005] Not surprisingly, various skin care products have been developed that attempt to simulate the therapeutic effect of a bath in a mineral hot spring. Most such products are compositions to add to bath water that are advertised as having therapeutic and/or cosmetic effects on human body. These bath water products, such as bath salts, include various kinds of active ingredients depending on the specific objective of their use. Therapeutic bath water products may include, but are not limited to, ingredients such as: inorganic salts, inorganic acids, organic acids, medicinal herbs together with common additives such as a variety of natural essential oils, dyestuffs, perfumes, fats and oils, and alcohols.

[006] Some skin care products have been formulated using of natural spring water to try to improve the therapeutic effects of the products. The composition of these products naturally depends on obtaining water from natural spring water sources. Unfortunately, the amount of salts, minerals, herbs and/or trace elements found in natural spring water may vary depending on the source, and vary depending on where and when the water was collected from the natural spring, and thus may be of limited therapeutic effect. Variations in the composition of water from natural sources, as well as the risks of contamination of such sources, requires expensive testing, filtering and/or treating of the
water from natural spring sources a commercial disadvantage. Additionally, obtaining water from natural water sources may be inconvenient and/or expensive, and may thus render providing a commercial product with the therapeutic effects of natural spring water impractical.

[007] The typical process of formulating skin care products, with the exception of certain oil-based products such as massage oils and body oils, is very similar to cooking. Most skin care products are about 60%-90% water. Creams and lotions may primarily consist of three parts: a water base (70%-80%), an oil base (10-15%), and an emulsifier (4%-6%). Creams and lotions may also contain preservative, as well as additives such as color, fragrances, essential oils, fragrance oils, and other additives. The water base is often in the range of 70-90% of the formula, and the emulsifier is used to meld the oils to the water.

[008] Typically, tap water or industrial drinking water that has been purified and de-ionized is used as the water base for skin care products. In the traditional process for producing skin care products the water is heated and then a pre-heated mixture of the oils, emulsifiers, and other additives is added to the heated water, thereby "cooking the ingredients" and then "spicing them up" using the fragrances and other additives to give the products various desirable and marketable qualities. The products may then be stabilized at a very high temperature and left to cool down to room temperature.

[009] Under such a formulation process, the therapeutic benefit of such skin care products, if any, must come from the oils, emulsifiers and other additives. However, as detailed above, these ingredients constitute only a very small percentage of the total ingredients of these skin care products. Therefore, the therapeutic effect of those ingredients must be limited by their limited quantity. This limitation is directly related to the typical formulation and production process described above.

[0010] If skin care products could be produced using a method and comprising a formulation making more of these necessary trace elements available to the skin, such products would provide a practical advantage to the consumer. For at least these reasons there remains a need for a process and formulation for skin care products that provide the therapeutic effects to the skin of a bath in a natural hot mineral spring.
BRIEF SUMMARY OF THE INVENTION

[0011] One or more embodiments of the invention relate to a thermal mineralization method and formulation that produces an activated solution for use as a base for skin care products. The thermal mineralization method creates mineral water from a municipal water source, such that the mineral water is similar to that of natural hot springs water, containing dissolved minerals in a form available to the skin, for use in a commercial skin care product would be an advantage.

[0012] Because it is clear that water is a significant ingredient of commercial skin care products, the composition of the water used is of primary concern in producing the most beneficial skin care products.

[0013] One or more embodiments of the invention comprise a method for making an activated solution for use in a variety of skin care products, the method comprising the steps of: providing a water; adding desired materials in accordance to one or more embodiment of the invention to the water as a mixture; heating the mixture to release water-soluble substances from the materials; and filtering the mixture to produce an activated solution for use in skin care products. To enable therapeutic effects in skin care products made from the activated solution, the mixture may be heated in a range of 60° C. to 100° C., and more preferably in a range of 90° C. to 99° C. The process in one or more embodiments of the invention comprises heating calcium carbonate, along with other minerals and natural substances as detailed herein, to create an activated solution that simulates the composition of natural hot springs water, the solution intended for use as a composition in and/or as part of a manufacturing process to produce a cosmetic compositions and other skin care products.

[0014] A preferred ingredient includes calcium carbonate. In one or more preferred embodiments, natural water-soluble calcium carbonate may be used. A preferred source of such calcium carbonate is from the famous hot spring in Futamata-Onsen, Hokkaido, Japan. Calcium from this spring (the "alagonite-type") is rare in the world. The other known deposit of alagonite calcium include Mammoth Hot Springs, in California, USA. Use of calcium carbonate, and other ingredients described herein, may produce a solution for use in skin care products that provide the benefits of soaking in a hot spring without the inconvenience associated with that practice.
One or more embodiments of the mineral water formula (activated solution) of the invention may be used in any cosmetics or other skin care products intended for direct application to the skin, hair or nails. The skin care products formulated in accordance with the invention include all types of such products, but in particular, the invention may be directed to a method and composition of skin care products such as cosmetics, lotion, moisturizers, chemical peel, sunscreen, or any other.

In some embodiments of the invention, the mineral water formula will be heated to product an "activated solution." Use of this activated solution in the production of skin care products may produce the effect of using natural thermal spring water without the expense or logistics of providing natural water at a factory for commercial production of skin care products. As such, the activated solution may provide the cosmetic benefits and therapeutic effects to the skin of salts, minerals, and/or trace elements found in natural hot spring mineral water.
BRIEF DESCRIPTION OF THE DRAWINGS

The above and other aspects, features and advantages of the invention will be more apparent from the following more particular description thereof, presented in conjunction with the following drawings wherein:

[0017] Figure 1 illustrates one embodiment of the method of the invention for making an activated solution according to one exemplary embodiment.

[0018] Figure 2 illustrates a method of forming a cosmetic composition according to one exemplary embodiment of the invention.

[0019] Figure 3A illustrates one embodiment of a wooden box for use as a container for ingredients of the invention for making an activated solution.

[0020] Figure 3B illustrates one embodiment of the pouch for use as a container for ingredients of the invention for making an activated solution.

[0021] Figure 4 is a diagram illustrating another method of making the activated solution, according to one exemplary embodiment.
DETAILED DESCRIPTION

[0022] A thermal mineralization process described herein may produce an activated solution useful in the commercial production of skin care products for cosmetic and/or dermatological applications. In the following exemplary description, numerous specific details are set forth in order to provide a more thorough understanding of embodiments of the invention. It will be apparent, however, to an artisan of ordinary skill that the present invention may be practiced without incorporating all aspects of the specific details described herein. In other instances, specific features, quantities, or measurements well known to those of ordinary skill in the art have not been described in detail so as not to obscure the invention. It should be noted that although examples of the invention are set forth herein, the claims, and the full scope of any equivalents, are what define the metes and bounds of the invention.

[0023] As used herein, skin care products comprise products intended for human use and intended for application to the skin, hair, or nails of the body for cosmetic and/or dermatologic purposes.

[0024] One or more embodiments of the invention comprise creating a composition of specially formulated mineral water (activated solution) for use in production of skin care products. The activated solution described herein is believed to simulate the water of a natural hot spring and inure the health benefits thereof, and may comprise the following preferred ingredients:

[0025] Water-soluble calcium carbonate ore (calcium content: 95.75%): Calcium carbonate has been shown to be effective in relief of at least nerve pain, rheumatism, back pain, fatigue, poor blood circulation, rough and dry skin.

[0026] Weathered coral: Preferably, that produced in Kuromatsunai, Hokkaido, Japan, where it is mined from a 20 million-year-old seabed layer that has been uplifted to ground level. The fossilized coral adds its unique valuable mineral contents to smooth the skin and warm up the entire body.

[0027] Hiba-tree powder: Hiba tree powder if obtained from the Hiba tree, also known as the Japanese Cypress (hinokitiol; Thujopsis dorabrata), which may contain Hiba-tree oil (hinokitiol). The product is commercially available. Aomori, Japan is a preferred
source for this product. Hiba-tree powder is believed to have antibacterial and deodorant effects, and to provide a soothing and relaxing scent.

[0028] Super-tourmaline powder, sometimes called "electric stone": When this powder is exposed to water, it induces electrolysis and generates negative ions. It also ionizes water molecules by producing a negative ion effect, which negative ions are released into the air. The negative ions of super-tourmaline powder are believed to improve blood circulation and alleviate nerve pain.

[0029] After heating the solution described in detail herein, an activated solution may be created. The negative ion effect of this activated solution formulated in skin care products may release negative ions into the air, for example, following the application of skin care products. Negative ions are believed to enhance the alertness of a subject by increasing the flow of oxygen to brain, which results in improved blood circulation and alleviation of nerve pain. Additional beneficial ingredients may be added to the cosmetic formula that may also benefit from the delivery effect of negative ionized air, such as vitamin E, Aloe Vera, and various well-known essential oils.

[0030] Another benefit of using negative ion water is that use of the product produced with an activated solution of one or more embodiments of the invention is that the activated solution's negative ions may be released when the resultant product is applied to the skin. Negative ions are thought to increase the flow of oxygen to the brain of a subject, increasing alertness. It is also thought that negative ions may provide some protection against germs.

[0031] The phrase "pharmaceutically acceptable" or "cosmetically acceptable," as used herein, refers to molecular entities and compositions that do not produce an allergic or similar untoward reaction when administered to a human. The pharmaceutically or cosmetically acceptable carriers and additives employed in the present compositions are compatible with at least one formulation of the activated solution as described herein.

[0032] The term "water," as used herein, includes but is not limited to any water such as spring water, sterilized water, filtered water, reverse osmosis water, distilled water, carbonated or sparkling water, purified water, artesian water, ground water, mineral water, spring water, well water, municipal water, and mixtures thereof. Preferably, the starting water for making the activated solution compositions in one or more
embodiments of the invention may be distilled or de-ionized water, however, water
directly from a municipal water source may be used. However, some or all of the water
used in the method of one or more embodiments of the invention may optionally be
chosen from mineral or spring waters. As such, mineral or spring waters are already
enriched with additional salts, minerals, and trace elements, as well as other inorganic
and/or organic constituents by undergoing the process in one or more embodiments of the
invention. The water quality of the water selected should be at least adequate for human
skin application without causing any undesirable biological effects or interacting in a
deleterious manner with any of the other components of the cosmetic or dermatological
composition in which it is contained.

[0033] The terms "mineral water" and "spring water," as used herein, may denote not
only natural mineral or spring waters but also natural mineral or spring waters undergoing
the process in accordance to one or more embodiments of the invention, which are then
enriched with additional salts, minerals and/or trace elements constituents.

[0034] As used herein, the term "plant matter" may refer to any preparations, including
extracts and powders, and/or parts obtained from living or nonliving plants, including
trunks, stems, limbs, branches, roots, and leaves. Any plants that are typically found at a
water source may be used in one or more embodiments of the invention.

[0035] As used herein, the term "Hiba substance" may refer to any preparations,
including extracts and powders, obtained from trunks, limbs, branches, roots, and leaves
of Taiwan hinoki cypress (Chamaecyparis obtuse var formosan), Aomori Hiba
(Thujopsis dolabrata var hondo) or incense cedar (Calocedrus decumens). The Hiba
substance may be Hiba tree oil, hinokitiol, the chemical name of which is β-thujaplicin.

[0036] Hinokitiol has a wide spectrum of efficacy on aerobic bacteria, anaerobic bacteria
and food pathogens. Hinokitiol has a distinct smell, strong taste and low water solubility.
It has been said that the water solubility of hinokitiol as a single substance, in weight is
maximum 0.2 % v/v.

[0037] As used herein, the term "tourmaline materials" may refer to any natural or
synthetic borosilicate containing products with a variety of unusual pyroelectric and
piezoelectric properties. The tourmaline exhibits a variety of color or no color, including
but not limited to colorless tourmaline, yellow tourmaline, pink tourmaline, green
tourmaline, red tourmaline, blue tourmaline, etc. Tourmalines used in one or more embodiment of the invention may be of calcic group, vacancy (or "x-site") group. According to other classification scheme, tourmaline may be of alkali group and of fluor-subgroup, oxy-subgroup or hydroxy-subgroup. Tourmaline includes buergerite (NaFe3+Al6Si6O18(BO3)3(SiO3)F), chromdravite (NaMgCr6Si6O18(BO3)3S(OH)4), dravite (NaMg3Al6Si6O18(BO3)3(MOH)4), elbaite (Na(Li1.5Al1.5)Al6Si6O18(BO3)3(OH)4), feruvice (CaFe2+(MgAl3)Si6O18(BO3)3(OH)4), foiite ((Fe2+Al)6Si6O18(BO3)3(OH)4), liddicoatite (Ca(Li2Al)6Si6O18(BO3)3(OH)4), magnesiofite ((Mg2Al)6Si6O18(BO3)3(OH)4), olivenite (NaAl3Al6Si6O18(BO3)3(OH)3), poudondraite (NaAl3Fe3+Mg2Si6O18(BO3)3(OH)3), rossmanite ((LiAl2)Al6Si6O18(BO3)3(OH)4), schorl (NaFe2+Al6Si6O18(BO3)3(OH)4), uvite (CaMg3(MgAl3)Si6O18(BO3)3(OH)4), and/or vanadiumdravite (NaMg3V6Si6O18(BO3)3(OH)4). The electric and catalytic properties of the tourmalines and tourmaline materials and their application in water treatment are well known and documented in the art. Tourmalines may be contained in a variety of carriers such as in the form of ceramic pellets.

[0038] As used herein, the term "mineral materials" may refer any mineral-containing product, including those formed by processing mineral ores. Mineral material may include but is not limited to, crystalline, para-crystalline, and non-crystalline minerals. Examples of crystalline minerals include quartz, feldspars, hornblendes, olivine, and micas. Typical examples of non-crystalline minerals include volcanic glass and ash, and some clay minerals, such as allophane, and some iron and aluminum oxides. Examples of para-crystalline minerals include smectite (such as bentonite, attapulgite, saponite, hectorite, sepiolite and fullers earth), halloysite, chrysotile, and imogolite.

[0039] As used herein, the term "limestone material" may include but not limited to limestone, coral rocks, fossils of ammonites, fossils of corals, shells or skeletons from other living or nonliving invertebrates, and mixtures thereof. Limestone may lack complete and recognizable coral skeletons and structures (i.e. corallites, septa) but may contain a matrix of lime cement and broken pieces of reef rock and mollusk shells.

[0040] Compositions

[0041] In a preferred embodiment of the invention, the following ingredients may be included in the formula to produce the activated solution. In one or more preferred
embodiments, only 100% natural ingredients are used: (1) "Yunohana" (mineral deposits) comprising water-soluble calcium carbonate (95.75%) powder, preferably collected from Futamata Onsen hot springs in Hokkaido, Japan; (2) tourmaline ceramics ("super tourmaline" powder), preferably from Brazil; (3) 20 million year old coral fossil (from Kuromatsunai, Hokkaido, Japan); and (4) Hiba-tree (cedar wood), preferably from Aomori, Japan.

[0042] It is believed that super tourmaline powder may improve blood circulation and alleviates nerve pain, perhaps through its negative ions and far-infrared radiation, while coral fossil may smooth and warms the skin. Tourmaline is though to emit far infrared electromagnetic energy, which may function to stimulate the circulation and to keep the body warm. The effects of using products containing tourmaline may include smoothening of the skin and improving perspiration.

[0043] Hiba-tree products are thought to have anti-bacterial and deodorant effects. Hiba tree oil in particular is thought to be an anti-fungal: Hinokitiol (P-thujaplicin), is a volatile oil found in woody tissues of the Japanese Hiba tree (Thujopsis dolabrata), Formosan hinoki (Chamaecyparis taiwanesis), and in the Western red cedar (Thuja plicata) and is extracted by steam distillation. Hinokitiol is a strong chelating agent inhibiting many microbial enzymes and is a government-approved food additive in Japan. Further, Hiba-tree oil is reported to produce relaxation effects possibly related to the negative ions and the scent of cedar, as well as it antibacterial and deodorant effects.

[0044] Process of Making An Activated Solution

[0045] The thermal mineralization process of making activated solution composition of one or more embodiments of the invention simulates the same process at that which creates the water found in natural hot springs. In addition to minerals, salts and trace elements, the natural thermal spring water compositions may contain further auxiliaries and additives, which have cosmetic and/or therapeutic benefit. Commercially available mineral packets containing calcium carbonate mineral powder, Kuromatsunai coral fossils, Hiba tree powder, and super-tourmaline powder may be used in the method of making the activated solution of one ore more embodiments of the invention. Such commercially available mineral packets are often marketed for use as "hot-spring bath salts."
The process of making an activated solution in one or more embodiments of the invention comprises combining water from a municipal water source with various mineral and plant materials under various described conditions in order to infuse the water with additional salts, minerals, trace elements, inorganic, and/or organic constituents with their attendant therapeutic effects.

Any combination of the materials described herein may be used to infuse water to create the activate solution of the invention, including other mineralogical substances, as well as organisms such as bacteria and plants that are typically found at natural hot springs. Examples of natural hot springs include, but are not limited to, thermal springs, warm mineral water sources, soda springs, geysers, warm salt-water lakes or streams, estuaries, seeps, sinkholes, warm water underground aquifers, warm ocean waters, and aqueous envelopes of the earth.

Natural water sources often include various salts, minerals, trace elements, inorganic, and/or organic constituents in the water. In one or more embodiments of the invention, the method may simulate the natural process of infusing minerals into water that occurs at natural water sources. For example, in some natural water sources the water may have traveled great distances underground before resurfacing as a spring. In the case of the thermal hot springs, water often percolates through porous sedimentary rock to reach the surface. As it ascends through the rock, the water picks up a variety of materials, everything from radium to sulfur. In addition, as it moves further beneath the surface, it heats up from the primal heat of the Earth. Eventually, it encounters a large thrust fault, or crack. As water descends behind it, it forces the now heated water to ascend along the fault-line to surface as a hot or warm (thermal) spring.

FIG. 1 illustrates a method of making the activated solution of one or more embodiments of the invention. The method 100 begins with providing water 101 from a municipal source. The water may be contained in any manner that allows it to be heated to within a particular temperature range, or a warm water source of predicable temperature range may be provided. At mixture at step 102, one or more of the selected ingredients may be added to the water, such as but not limited to, mineral materials including calcium carbonate, tourmaline, and limestone, as well as plant materials such as a Hiba substance described elsewhere herein.
In one or more embodiments, mineral ingredients and/or plant ingredients may be contained in a water-permeable container configured to encapsulate the ingredients and to allow the water to mix in with the content, and to allow the infused water to flow back out of the container. Containers such as a fabric sack, cotton pouch, tea bag, or paper bag may be used in various embodiments of the invention. Fig. 3B illustrates an example cotton pouch 303, where material 304 encompasses the ingredients as specified herein, and sewn edge 305 ensures that the ingredients remains in the pouch. Such mineral pouches are in common use for bath salts, but may also be used for commercial applications such as the creation of the activated solution of one or more embodiments of the invention, because the pouch retains ingredients for many reuses, and because cotton pouch 303 aids in keeping filters for the activated solution from clogging. In addition, a container in the form of a wooden box may be used in one or more embodiments. Fig. 3A illustrates Hiba box 301, showing various openings 302 that create a water permeable barrier that allows the water to enter the box, mix with the solution ingredients, and flow back out of openings 302. Openings 302 may be screened or use any other method known in the art to allow water in and prevent solution ingredients from flowing out. In still other embodiments, plant matter may not be included in the mineral mixture, but may instead be included through use of a container made from the plant material itself, and which can contain the mineral ingredients. For example, the Hiba substance may enter the solution by being included as a powder in a cotton pouch, or by using a wooden box made of Hiba wood to contain the mineral ingredients. The Hiba box may be placed into the water, which is then heated. The water permeates the box, carrying the mineral material through the wood while elements of the Hiba box also may enter the activated solution. The Hiba box may later be removed from the activated solution, which may then be used to formulate skin care products as described elsewhere herein.

When using a fabric or other type of pouch to provide the ingredients to the water in one or more embodiments of the invention, the pouch may contain as few as the four preferred ingredients. (1) Water-soluble calcium carbonate ore (calcium content about 95.75%) preferably produced from the Futamata hot spring Hokkaido, Japan; (2) specially manufactured tourmaline ceramics, also known as "electric stone," which when exposed to water induce electrolysis and generates negative ions, and may also ionize water molecules by decreasing their size (a negative ion effect); (3) fossil (weathered) coral, preferably produced from coral found in Kuromatsunai, Hokkaido, which mined
from a 20 million-year-old seabed layer (limestone material) which has been uplifted to ground level; (4) Hiba-tree powder, preferably from Aomori, Japan. The pouch may contain on average 60 grams of the materials included. When this amount of ingredients is used, it will typically be immersed in a container of approximately 100 gallons of de-ionized water. As stated above, de-ionized water is preferred, though any municipal water source may be used. In another embodiment the box frame itself may made entirely of wood from the Hiba tree.

[0052] When using a wooden box as a container in one or more embodiments, additional ingredients may be preferred. For example, the wooden container may additionally include: Binchotan-charcoal, which is thought to have the same absorbability as activated carbon and may absorb heavy metals and impurities from water; Maifanshi-stone, whose mineral content activates the tap water to decompose impurities for superior sterilization effects; and dechlorination ceramics, which may quickly decompose and removes chlorine and other unpleasant odors from water. Other ingredients with beneficial therapeutic effects to the skin may be included in the mixture as desired. A preferred wooden box container for use as the mineral vessel may have a plurality of slotted openings, or any other type of wooden box or container that may act as a permeable repository for the ingredients.

[0053] The mixture may then be activated in the container at step 103. As used herein, the term "activation" and its derivatives may refer to a process in which the water is infused by the mixture providing water-soluble substances such as salts, minerals, trace minerals, inorganic, and/or organic constituents. Examples of the process may include heating the mixture, putting the mixture under pressure, manual or other mechanical mixing of the contents together to ensure even distribution of the contents, and/or having one or more constituents of the mixture undergo some chemical or physical changes (such as catalyzing chemical reactions or diffusing water-soluble substances) which effectuates the infusion of the solution. Heating the mixture is a preferred method of activating the solution. In an embodiment using 100 gallons of water, the vessel may then be heated to 90° C. for approximately one hour. The water-soluble substances exude into the water and this simulates the natural processes producing thermal spring water. After about one hour, the main vessel may be cooled down to room temperature.
[0054] A property of concern of the activated solution of one or more embodiments of the invention involves its pH. The pH of the activated solution in one or more embodiments may be measured using a standard glass-electrode pH meter, or any other suitable device known to those of skill in the art. In one or more preferred embodiments, the pH of the solution and resulting products may be monitored at every interval in the production of the activated solution and resulting skin care products. The pH may be brought into the range of between 6.5 and 8.5, and preferably between 7.6 and 8.1. In other embodiments, the activated solution compositions using certain materials may have a final pH ranging from 3 to 10.

[0055] The pH of the activated solution may be adjusted to the preferred range by conventionally methods, such as by adding a base (organic or inorganic) to the composition. Applicable bases for use in the present invention include but are not limited to sodium hydroxide, aqueous ammonia or a primary, secondary or tertiary (poly)amine such as monoethanolamine, diethanolamine, triethanolamine, isopropanolamine or 1,3-propanediamine, or alternatively by adding an organic or inorganic acid such as, for example, citric acid, lactic acid or hydrochloric acid.

[0056] In one or more embodiments, a pouch or container with the selected ingredient as described above may be placed into a main vessel containing de-ionized water. The mixture in the main vessel may be heated to approximately 90°C for one hour. The essence from the box materials exudes in the water and this simulates the process of producing natural thermal spring water. The water may be tested until a desired pH is reached at a target level of alkalinity. In one embodiment of the invention, for example, the pH level may be stabilized once it reaches 7.6 - 8.1 or thereabouts. After one hour, the main vessel may be cooled down to room temperature. The mixture may be filtered to remove any deposits that precipitate out of the solution after cooling, and the residual water may be used as the activated solution of one or more embodiments of the invention. In alternative embodiments, the wooden box may be substituted for a bag or any other permeable repository for exuding the materials into the water.

[0057] After the activation step, the mixture may be filtered to produce the activated solution and to remove any deposits that may precipitate out of the mixture 104. The activated solution may then used as a component of or used in the process of producing skin care products such as cosmetic and/or dermatological compositions in one or more
embodiments of the invention. Use of a container for ingredients is preferred, but not required. Other commercially known methods for infusing water with mineral and plant ingredients may be used in other embodiments of the invention.

[0058] Fig. 4 illustrates another method of making the activated solution 400, according to one exemplary embodiment of the invention. A vessel with an amount of water is provided at step 401. Selected ingredients in accordance with one or more embodiments as described elsewhere herein may be added in a water permeable container at step 402. At step 403, the water permeable container is placed into water in the vessel. The vessel may be heated to a desired temperature for a length of time at step 404. The vessel may be allowed to cool to a room temperature at step 405. At step 406, the content of the vessel is filtered to produce the activated solution, which is then used in one or more embodiments of the invention.

[0059] Cosmetic Formulations

[0060] The activated solution of the present invention may be used in various cosmetic dermatologic and pharmaceutical consumer products utilizing a variety of delivery systems and carrier bases. Such consumer product forms include the group consisting of shampoos, aftershaves, sunscreens, body and hand lotions, skin creams, skin peels, liquid soaps, bar soaps, bath oil bars, shaving creams, conditioners, nail polish, permanent waves, hair relaxers, hair bleaches, hair detangling lotion, styling gel, styling glazes, spray foams, styling creams, styling waxes, styling lotions, mousses, spray gels, pomades, shower gels, bubble baths, hair coloring preparations, conditioners, hair lighteners, coloring and non-coloring hair rinses, hair grooming aids, hair tonics, skin spritzers, styling waxes, bandages, and balms.

[0061] For example, an oil-in-water emulsion may be produced according to one or more embodiments of the invention. 87.0 g of activated solution may be prepared according to the discussion above. The activated solution may then be added to a main vessel comprising approximately 10.0 g of sclerotium gum, a thickening and gelling agent. The mixture may then be homogenized in water until uniform. The mixture in the main vessel may then be heated to about between 75°-80° C. As further example, 2.0 g of Incroquat Behenyl TMS-50, 1.0 g of Cosmowax P, 10.0 g of dimethicone (e.g., Masil SFR 2,000, Dow Corning 200, Chemsil DM6) may then be combined together to make an
emulsifying system agent. 13.0 g of the emulsifying system agent and 3.0 g cetyl alcohol (e.g., Alfol 16 Alcohol), an emollient agent, may be added to the 75° - 80° C mixture and mixed for about an additional ten minutes until all solids are melted. The mixture may then be cooled to 50° - 55° C. Finally, 2.0 g of Hydrovance and 5.0 g of Hydrolite-5 moisturizing agents may be added to the mixture and mixed until uniform. The mixture may then be cooled to 30° C while mixing continues.

[0062] Delivery Systems

[0063] In one or more embodiments, the delivery system or a carrier base may be selected in the form of a lotion, cream, gel, spray, thin liquid, body splash, powder, compressed powder, toothpaste, tooth powder, nail care products, mouth spray, dentifrice paste, clear gel dentifrice, face mask, skin spray, cosmetic serums, solid cosmetic sticks, lip balm, shampoo, liquid soap, bar soap, bath oil, bath salts, pastes, salves, collodion, impregnated patch, impregnated strip, skin surface implant, impregnated or coated diaper, and similar delivery or packaging form.

[0064] In other embodiments, the delivery system may be human body or hair deodorizing solutions, deodorizing powder, deodorizing gel, deodorizing spray, deodorizing stick, deodorizing roll-on, deodorizing paste, deodorizing cream, deodorizing lotion, deodorizing aerosol, and other commonly marketed human body and hair deodorizing compositions, household deodorizing solution, deodorizing powder, deodorizing gel, deodorizing spray, carpet deodorizer, room deodorizer, and other commonly marketed household deodorizing compositions, deodorizing powder, deodorizing gel, deodorizing spray, room deodorizer, and other commonly marketed deodorizing compositions. In one or more embodiments, the delivery system may include deodorizing products intended for pets and/or pet owners.

[0065] In still other alternative embodiments, the delivery system for the activated solution may be water and oil emulsions, suspensions, colloids, microemulsions, clear solutions, suspensions of nanoparticles, emulsions of nanoparticles, or anhydrous compositions that are commonly used in cosmetic products.

[0066] Additional Ingredients
In one or more embodiments, additional cosmetically and/or pharmaceutically beneficial ingredients may also be included in the formulated compositions of the invention, which may be selected from, but is not limited to: skin cleansers, cationic, anionic surfactants, non-ionic surfactants, amphoteric surfactants, and zwitterionic surfactants, skin and hair conditioning agents, vitamins, hormones, minerals, plant extracts, anti-inflammatory agents, collagen and elastin synthesis boosters, UVA/UVB sunscreens, concentrates of plant extracts, emollients, moisturizers, skin protectants, humectants, silicones, skin soothing ingredients, antimicrobial agents, antifungal agents, treatment of skin infections and lesions, blood microcirculation improvement, skin redness reduction benefits, additional moisture absorbents, analgesics, skin penetration enhancers, solubilizers, moisturizers, emollients, anesthetics, colorants, perfumes, preservatives, seeds, broken seed nut shells, silica, clays, beads, luffa particles, polyethylene balls, mica, pH adjusters, processing aids, and combinations thereof.

In another embodiment, the cosmetically acceptable composition may further comprise one or more excipients including, such as, water, saccharides, surface active agents, humectants, petrolatum, mineral oil, fatty alcohols, fatty ester emollients, waxes and silicone-containing waxes, silicone oil, silicone fluid, silicone surfactants, volatile hydrocarbon oils, quaternary nitrogen compounds, amine functionalized silicones, conditioning polymers, rheology modifiers, antioxidants, sunscreen active agents, di-long chain amines from about C10 to C22, long chain fatty amines from about C10 to C22, fatty alcohols, ethoxylated fatty alcohols and di-tail phospholipids.

Representative saccharides include nonionic or cationic saccharides such as agarose, amylpectins, amyloses, arabinans, arabinogalactans, arabinoxylans, carageenans, gum arabic, carboxymethyl guar gum, carboxymethyl(hydroxypropyl) guar gum, hydroxyethyl guar gum, carboxymethyl cellulose, cationic guar gum, cellulose ethers including methyl cellulose, chondroitin, chitin, chitosan, chitosan pyrrolidone carboxylate, chitosan glycolate chitosan lactate, cocodimonium hydroxypropyl oxyethyl cellulose, colominic acid ([poly-N acetyl-neuraminic acid]), corn starch, curdlan, dermatin sulfate, dextrans, furcellarans, dextrans, cross-linked dextrans, dextrin, emulsan, ethyl hydroxyethyl cellulose, flaxseed saccharide (acidic), galactoglucomannans, galactomainans, glucomannans, glycogens, guar gum, hydroxy ethyl starch, hydroxypropyl methyl cellulose, hydroxy ethyl cellulose, hydroxy propyl cellulose,
hydroxypropyl starch, hydroxypropylated guar gums, gellan gum, gellan, gum ghatti, gum karaya, gum tragancanth (tragacanthin), heparin, hyaluronic acid, inulin, keratin sulfate, konjac mannan, modified starches, laminarans, laurdimonium hydroxypropyl oxyethyl cellulose, okra gum, oxidized starch, pectic acids, pectin, polydextrose, polyquaternium-4, polyquaternium-10, polyquaternium-28, potato starch, protopectins, psyllium seed gum, pullulan, sodium hyaluronate, starch diethylaminoethyl ether, steardimonium hydroxyethyl cellulose, raffmose, rhamsan, tapioca starch, whelan, levan, scleroglucan, sodium alginate, stachylose, succinoglycan, wheat starch, xanthan gum, xylans, xyloglucans, and mixtures thereof.

[0070] Surface Active Agents

[0071] One or more cosmetically acceptable compositions of the invention may include surface-active agents. Surface-active agents include surfactants, which typically provide detersive functionality to a formulation or act simply as wetting agents. Surface-active agents may generally be categorized as anionic surface-active agents, cationic surface-active agents, nonionic surface-active agents, amphoteric surface-active agents and zwitterionic surface-active agents, and dispersion polymers.

[0072] Anionic surface-active agents useful may be included in the cosmetically acceptable composition of the invention. Examples include alkyl and alkyl ether sulfates. Specific examples of alkyl ether sulfates which may be used in this invention are sodium and ammonium salts of lauryl sulfate, lauryl ether sulfate, coconut alkyl triethylene glycol ether sulfate; tallow alkyl triethylene glycol ether sulfate, and tallow alkyl hexaoxyethylene sulfate. Alkyl ether sulfates are those comprising a mixture of individual compounds, said mixture having an average alkyl chain length of from about 12 to about 16 carbon atoms and an average degree of ethoxylation of from about 1 to about 6 moles of ethylene oxide.

[0073] Another suitable class of anionic surface-active agents is the alkyl sulfuric acid salts. Important examples are the salts of an organic sulfuric acid reaction product of a hydrocarbon of the methane series, including iso-, neo-, and n-paraffins, having about 8 to about 24 carbon atoms, typically about 12 to about 18 carbon atoms and a sulfonating agent, for example, sulfur trioxide or oleum, obtained according to known sulfonation
methods, including bleaching and hydrolysis. Typical are alkali metals and ammonium sulfated C12-38 n-paraffms.

[0074] Additional synthetic anionic surface-active agents include the olefin sulfonates, the beta-alkyloxy alkane sulfonates, and the reaction products of fatty acids esterified with isethionic acid and neutralized with sodium hydroxide, as well as succinamates. Specific examples of succinamates include disodium N-octadecyl sulfosuccinamate; tetrasodium N-(1,2-dicarboxyethyl)-N-octadecylsulfosuccinamate; diamyl ester of sodium sulfosuccinic acid; dihexyl ester of sodium sulfosuccinic acid; dioctyl esters of sodium sulfosuccinic acid.

[0075] Typical anionic surface-active agents for use in the cosmetically acceptable composition of this invention include ammonium lauryl sulfate, ammonium laureth sulfate, triethyamine lauryl sulfate, triethylamine laureth sulfate, triethanolamine lauryl sulfate, triethanolamine laureth sulfate, monoethanolamine lauryl sulfate, monoethanolamine laureth sulfate, diethanolamine lauryl sulfate, diethanolamine laureth sulfate, lauric monoglyceride sodium sulfate, sodium lauryl sulfate, sodium laureth sulfate, potassium lauryl sulfate, potassium laureth sulfate, sodium lauryl sarcosinate, sodium lauroyl sarcosinate, lauryl sarcosine, cocoyl sarcosine, ammonium cocoyl sulfate, ammonium lauroyl sulfate, sodium cocoyl sulfate, sodium lauroyl sulfate, potassium cocoyl sulf ate, potassium lauryl sulfate, triethanolamine lauryl sulfate, triethanolamine lauryl sulfate, monoethanolamine cocoyl sulfate, monoethanolamine lauryl sulfate, sodium tridecyl benzene sulfonate, and sodium dodecylbenzene sulfonate.

[0076] Amphoteric surface-active agents which may be used in the cosmetically acceptable composition of this invention include derivatives of aliphatic secondary and tertiary amines, in which the aliphatic substituent contains from about 8 to 18 carbon atoms and an anionic water solubilizing group e.g., carboxy, sulfonate, sulfate, phosphate, or phosphonate. Representative examples include sodium 3-dodecyl-aminopropionate, sodium 3-dodecylaminopropionate sulfonate, sodium lauryl sarcosinate, N-alkyltaurines such as the one prepared by reacting dodecylamine with sodium isethionate as described in U.S. Pat. No. 2,658,072, N-higher alkyl aspartic acids as described in U.S. Pat. No. 2,438,091, and the products sold under the trade name MIRANOL as described in U.S. Pat. No. 2,528,378. Other sarcosinates and sarcosinate derivatives may be found in the
Quaternary ammonium compounds may also be used in the cosmetically acceptable composition of this invention as long as they are compatible in the compositions of the invention. Cationic surface-active agents generally include, but are not limited to fatty quaternary ammonium compounds containing from about 8 to about 18 carbon atoms. The anion of the quaternary ammonium compound may be a common ion such as chloride, ethosulfate, methosulfate, acetate, bromide, lactate, nitrate, phosphate, or tosylate and mixtures thereof. The long chain alkyl groups may include additional or replaced carbon or hydrogen atoms or ether linkages. Other substitutions on the quaternary nitrogen may be hydrogen, benzyl or short chain alkyl or hydroxyalkyl groups such as methyl, ethyl, hydroxymethyl or hydroxyethyl, hydroxypropyl or combinations thereof.

Examples of quaternary ammonium compounds include but are not limited to: Behentrimonium chloride, Cocotrimonium chloride, Cethethydimonium bromide, Dibehenyldimonium chloride, Dihydrogenated tallow benzylmonium chloride, disoyadimonium chloride, Ditallowdimonium chloride, Hydroxycetyl hydroxyethyl dimonium chloride, Hydroxyethyl Behenamidopropyl dimonium chloride, Hydroxyethyl Cetyldimonium chloride, Hydroxyethyl tallowdimonium chloride, myristalkonium chloride, PEG-2 Oleamonium chloride, PEG-5 Stearmonium chloride, PEG-15 cocoal quaternium 4, PEG-2 stearkinmonium 4, lauryltrimonium chloride; Quaternium-16; Quaternium-18, lauralkonium chloride, olealkmonium chloride, cetylpyridinium chloride, Polyquaternium-5, Polyquaternium-6, Polyquaternium-7, Polyquaternium-10, Polyquaternium-22, Polyquaternium-37, Polyquaternium-39, Polyquaternium-47, cetyl trimonium chloride, dilauridimonium chloride, cetalkonium chloride, dicetyldimonium chloride, soyatrimonium chloride, stearyl octyl dimonium methosulfate, and mixtures thereof.

The cosmetically acceptable compositions may comprise long chain fatty amines from about C10 to C22 and their derivatives. Specific examples include dipalmitylamine, lauramidopropyldimethylamine, and stearamidopropyl dimethylamine. The cosmetically acceptable compositions of one or more embodiments of the invention may also include fatty alcohols (typically monohydric alcohols), ethoxylated fatty alcohols, and di-tail
phospholipids, which may be used to stabilize emulsion or dispersion forms of the cosmetically acceptable compositions. Those compositions may also provide a cosmetically acceptable viscosity. Selection of the fatty alcohol is not critical, although those alcohols characterized as having fatty chains of C_{10} to C_{32}, typically C_{14} to C_{22}, which are substantially saturated alkanols will generally be employed. Examples include stearyl alcohol, cetyl alcohol, cetostearyl alcohol, myristyl alcohol, behenyl alcohol, arachidic alcohol, isostearyl alcohol, and isocetyl alcohol. Cetyl alcohol may be used alone or in combination with other fatty alcohols, typically with stearyl alcohol. When used the fatty alcohol is included in the formulations of this invention at a concentration within the range from about 1 to about 8 weight percent, typically about 2 to about 6 weight percent. The fatty alcohols may also be ethoxylated. Specific examples include cetereth-20, steareth-20, steareth-21, and mixtures thereof. Phospholipids such as phosphatidylserine and phosphatidylcholine, and mixtures thereof may also be included. When used, the fatty alcohol component is included in the formulations at a concentration of about 1 to about 10 weight percent, more typically about 2 to about 7 weight percent.

[0080] Nonionic surface-active agents that may be used in the cosmetically acceptable composition of one or more embodiments of the invention comprise those broadly defined as compounds produced by the condensation of alkylene oxide groups (hydrophilic in nature) with an organic hydrophobic compound, which may be aliphatic or alkyl aromatic in nature. Examples of typical classes of nonionic surface-active agents are: the long chain alkanolamides; the polyethylene oxide condensates of alkyl phenols; the condensation product of aliphatic alcohols having from about 8 to about 18 carbon atoms, in either straight chain or branched chain configuration, with ethylene oxide; the long chain tertiary amine oxides; the long chain tertiary phosphine oxides; the long chain dialkyl sulfoxides containing one short chain alkyl or hydroxy alkyl radical of from about 1 to about 3 carbon atoms; and the alkyl polysaccharide (APS) surfactants such as the alkyl polyglycosides; the polyethylene glycol (PEG) glyceryl fatty esters.

[0081] Zwitterionic surface-active agents such as betaines may also be useful in the cosmetically acceptable composition of this invention. Examples of betaines useful herein include the high alkyl betaines, such as coco dimethyl carboxymethyl betaine, cocoamidopropyl betaine, cocobetaine, lauryl amidopropyl betaine, oleyl betaine, lauryl dimethyl carboxymethyl betaine, lauryl dimethyl alphacarboxyethyl betaine, cetyl
dimethyl carboxymethyl betaine, lauryl bis-(2-hydroxyethyl) carboxymethyl betaine, stearyl bis-(2-hydroxypropyl) carboxymethyl betaine, oleyl dimethyl gamma-carboxypropyl betaine, and lauryl bis-(2-hydroxypropyl)alpha-carboxy ethyl betaine. The sulfobetaines may be represented by coco dimethyl sulfopropyl betaine, stearyl dimethyl sulfopropyl betaine, lauryl dimethyl sulfoethyl betaine, lauryl bis-(2-hydroxyethyl) sulfopropyl betaine and the like; amidobetaines and amidosulfobetaines, wherein the RCONH(CH₂)₃ radical is attached to the nitrogen atom of the betaine are also useful in this invention.

[0082] The anionic, cationic, nonionic, amphoteric or zwitterionic surface-active agents used in the cosmetically acceptable composition of one or more embodiments of the invention may typically be used in an amount from about 0.1 to 50 percent by weight, typically from about 0.5 to about 30 percent by weight.

[0083] Cosmetically Acceptable Composition

[0084] The cosmetically acceptable composition of one or more embodiments of the invention may include humectants, which act as hygroscopic agents, increasing the amount of water absorbed, held and retained. Suitable humectants for the formulations of this invention include but are not limited to: acetamide MEA, ammonium lactate, chitosan and its derivatives, colloidal oatmeal, galactoarabinan, glucose glutamate, glercyth-7, glyceryth-12, glycereth-26, glyceryth-31, glycerin, lactamide MEA, lactamide DEA, lactic acid, methyl gluceth-10, methyl gluceth-20, panthenol, propylene glycol, sorbitol, polyethylene glycol, 1,3-butanediol, 1,2,6-hexanetriol, hydrogenated starch hydrolysate, inositol, mannitol, PEG-5 pentaerythritol ether, polyglyceryl sorbitol, xylitol, sucrose, sodium hyaluronate, sodium PCA, and combinations thereof. The humectant may be present in the composition at concentrations of from about 0.5 to about 30 percent by weight.

[0085] The cosmetically acceptable composition of this invention may also include petrolatum or mineral oil components, which when selected will generally be USP or NF grade. The petrolatum may be white or yellow. The viscosity or consistency grade of petrolatum is not narrowly critical. Petrolatum may be partially replaced with mixtures of hydrocarbon materials, which may be formulated to resemble petrolatum in appearance and consistency. For example, mixtures of petrolatum or mineral oil with different waxes
and the like may be combined. Typical waxes include bayberry wax, candelilla wax, ceresin, jojoba butter, lanolin wax, montan wax, ozokerite, polyglyceryl-3-beeswax, polyglyceryl-6-pentastearate, microcrystalline wax, paraffin wax, isoparaffin, vaseline solid paraffin, squalene, oligomer olefins, beeswax, synthetic candelilla wax, synthetic carnauba, synthetic beeswax and the like may be blended together. Alkylmethyl siloxanes with varying degrees of substitution may be used to increase water retained by the skin. Siloxanes such as stearyl dimethicone, known as 2503 Wax, C30-45 alkyl methicone, known as AMS-C30 wax, and stearyloxytrimethylsilane (and) stearyl alcohol, known as 580 Wax. Additional alkyl and phenyl silicones may be employed to enhance moisturizing properties. Resins such as dimethicone (and) trimethylsiloxysilicate or Cyclomethicone (and) Trimethylsiloxysilicate fluid, may be utilized to enhance film formation of skin care products. When used, the petrolatum, wax or hydrocarbon or oil component is included in the formulations at a concentration of about 1 to about 20 weight percent, more typically about 1 to about 12 weight percent. When used, the silicone resins may be included from about 0.1 to about 10.0 weight percent.

[0086] Emollients are defined as agents that help maintain the soft, smooth, and pliable appearance of skin. Emollients function by their ability to remain on the skin surface or in the stratum corneum. The cosmetically acceptable composition of this invention may include fatty ester emollients. Specific examples of suitable fatty esters for use in the formulation of this invention include isopropyl myristate, isopropyl palmitate, caprylic/capric triglycerides, cetyl lactate, cetyl palmitate, hydrogenated castor oil, glyceryl esters, hydroxyethyl isostearate, hydroxy cetyl phosphate, isopropyl isostearate, isostearyl isostearate, diisopropyl sebacate, PPG-5-Ceteth-20, 2-ethylhexyl isononoate, 2-ethylhexyl stearate, C12 to C16 fatty alcohol lactate, isopropyl lanolate, 2-ethyl-hexyl salicylate, and mixtures thereof. The typical examples of fatty esters are isopropyl myristate, isopropyl palmitate, PPG-5-Ceteth-20, and caprylic/capric triglycerides. When used the fatty ester emollient is included in the formulations of this invention at a concentration of about 1 to about 8 weight percent, more typically about 2 to about 5 weight percent.

[0087] The compositions of this invention may also include silicone compounds. Typically, the viscosity of the silicone component is from about 0.5 to about 12,500 cps. Examples of suitable materials are dimethylpolysiloxane, diethylpolysiloxane,
dimethylpolysiloxane-diphenylpolysiloxane, cyclomethicone, trimethylpolysiloxane, diphenylpolysiloxane, and mixtures thereof. Dimethicone, a dimethylpolysiloxane end blocked with trimethyl units, is one example. Dimethicone having a viscosity between 50 and 1,000 cps may be used. When used, the silicone oils are included in the formulations of this invention at a concentration of 0.1 to 5 weight percent, more typically 1 to 2 weight percent.

[0088] The cosmetically acceptable compositions of this invention may include volatile and non-volatile silicone oils or fluids. The silicone compounds may be either linear or cyclic polydimethylsiloxanes with a viscosity from about 0.5 to about 100 centistokes. The typical linear polydimethylsiloxane compounds have a range from about 0.5 to about 50 centistokes. One example of a linear, low molecular weight, volatile polydimethylsiloxane is octamethyltrisiloxane-200 fluid having a viscosity of about 1 centistoke. When used, the silicone oils may be included in the formulations of this invention at a concentration of 0.1 to 30 weight percent, more typically 1 to 20 weight percent.

[0089] The cosmetically acceptable compositions of one or more embodiments of the invention may include volatile, cyclic, low molecular weight polydimethylsiloxanes (cyclomethicones). The cyclic volatile siloxanes may be polydimethyl cyclosiloxanes having an average repeat unit of 4 to 6, and a viscosity from about 2.0 to about 7.0 centistokes, and mixtures thereof. When used, the silicone oils are included in the formulations of this invention at a concentration of 0.1 to 30 weight percent, more typically 1 to 20 weight percent.

[0090] Silicone surfactants or emulsifiers with polyoxyethylene or polyoxypropylene side chains may also be used in compositions of the current invention. Examples include dimethicone copolyols and 5225C Formulation Aids. The side chains may also include alkyl groups such as lauryl or cetyl. Typical examples are lauryl methicone copolyol 5200 Formulation Aid, and cetyl dimethicone copolyol, known as Abil EM-90. Also may be used is lauryl dimethicone, known as Belsil LDM 3107 VP. When used, the silicone surfactants are included in the formulations of this invention at a concentration of 0.1 to 30 weight percent, more typically 1 to 15 weight percent. Amine functional silicones and emulsions may be utilized in the one or more embodiments of the invention. Examples include Dow Corning 8220, Dow Corning 939, Dow Corning 949, Dow Corning 2-8194.
Another example is Silicone SM. When used, the amine functional silicones are included in the formulations of this invention at a concentration of 0.1 to 5 weight percent, more typically 0.1 to 2.0 weight percent.

[0091] The cosmetically acceptable compositions of this invention may also include volatile hydrocarbon oils. The volatile hydrocarbon comprises from about C₆ to C₂₂ atoms. A typical volatile hydrocarbon is an aliphatic hydrocarbon having a chain length from about C₆ to C₁₆ carbon atoms. An example of such compound includes isohexadecane, under the trade name Permethyl 101A. Another example of a volatile hydrocarbon is C₁₂ to C₁₄ isoparaffin, under the trade name Isopar M. When used, the volatile hydrocarbons may be included in the formulations of one or more embodiments of the invention at a concentration of 0.1 to 30 weight percent, more typically 1 to 20 weight percent.

[0092] The cosmetically acceptable compositions of one or more embodiments of the invention may include cationic and ampholytic conditioning polymers. General examples include quaternary derivatives of cellulose ethers, quaternary derivatives of guar, homopolymers and copolymers of DADMAC, homopolymers and copolymers of MAPTAC and quaternary derivatives of starches. Specific examples, using the CTFA designation, include, but are not limited to Polyquaternium-10, Guar hydroxypropyltrimonium chloride, Starch hydroxypropyltrimonium chloride, Polyquaternium-4, Polyquaternium-5, Polyquaternium-6, Polyquaternium-7, Polyquaternium-14, Polyquaternium-15, Polyquaternium-22, Polyquaternium-24, Polyquaternium-28, Polyquaternium-32, Polyquaternium-33, Polyquaternium-36, Polyquaternium-37, Polyquaternium-39, Polyquaternium-45, Polyquaternium-47 and polymethacrylamidopropyltrimonium chloride, and mixtures thereof. When used, the conditioning polymers are included in the cosmetically acceptable composition of this invention at a concentration of from 0.1 to 10 weight percent, typically from 0.2 to 6 weight percent.

[0093] The cosmetically acceptable composition of one or more embodiments of the invention may include one or more rheological modifiers. The rheological modifiers that may be used in this invention include high molecular weight crosslinked homopolymers of acrylic acid, and Acrylates/C 10-30 Alkyl Acrylate Crosspolymer, such as the Carbopol and Pemulen series; anionic acrylate polymers such as Salcare and cationic acrylate
polymers such as Salcare SC96; Acrylamidopropyltrimonium chloride/acrylamide; Hydroxyethyl methacrylates polymers, Steareth-10 Allyl Ether/Acrylate Copolymer; Acrylates/Beheneth-25 Metacrylate Copolymer, known as Aculyn; Glyceryl Polymethacrylate, Acrylates/Steareth-20 Methacrylate Copolymer; bentonite; gums such as alginates, carageenans, gum acacia, gum arabic, gum ghatti, gum karaya, gum tragacanth, guar gum; guar hydroxypropyltrimonium chloride, xanthan gum or gellan gum; cellulose derivatives such as sodium carboxymethyl cellulose, hydroxyethyl cellulose, hydroxymethyl carboxyethyl cellulose, hydroxymethyl carboxypropyl cellulose, ethyl cellulose, sulfated cellulose, hydroxypropyl cellulose, methyl cellulose, hydroxypropylmethyl cellulose, microcrystalline cellulose; agar; pectin; gelatin; starch and its derivatives; chitosan and its derivatives such as hydroxyethyl chitosan; polyvinyl alcohol, PVM/MA copolymer, PVM/MA decadiene crosspolymer, poly(ethylene oxide) based thickeners, sodium carbomer, and mixtures thereof. When used, the rheology modifiers are included in the cosmetically acceptable composition of this invention at a concentration of from 0.01 to 12 weight percent, typically from 0.05 to 10 weight percent.

[0094] The cosmetically acceptable composition of one or more embodiments of the invention may also include one or more antioxidants, which include, but are not limited to ascorbic acid, BHT, BHA, erythorbic acid, bisulfite, thioglycolate, tocopherol, sodium metabisulfite, vitamin E acetate, and ascorbyl palmitate. When used, the antioxidants are included in the cosmetically acceptable composition of one or more embodiments of the invention at from 0.01 to 20 weight percent, typically 0.5 to 10 weight percent.

[0095] In the heating method step of one or more embodiments of the invention, the water comprising the ingredients described herein may turn alkaline. It is thought by the inventor that in this particular instance that the water molecules may create clusters that comprise twelve units in irregular shape, which are reduced by the method to five molecules in a regular shape. This is thought that this increased surface area of the water molecules may allow a better bonding opportunities for the water molecules to combine with the other ingredients in the formula described herein. Alkaline water is also anti-oxidant water. Anti-oxidant water is believed to carry the benefits of the ingredients of the composition to the skin.

[0096] The cosmetically acceptable composition of one or more embodiments of the invention may include one or more sunscreen active agents. Examples of sunscreen
active agents include, but are not limited to octyl methoxycinnamate (ethylhexyl p-methoxycinnamate), octyl salicylate oxybenzone (benzophenone-3), benzophenone-4, menthyl anthranilate, dioxybenzone, aminobenzoic acid, amyl dimethyl PABA, diethanolamine p-methoxy cinnamate, ethyl 4-bis (hydroxypropyl) aminobenzoate, 2-ethylhexy 1-2-cyano-3,3-diphenylacrylate, homomenthyl salicylate, glyceryl aminobenzoate, dihydroxyacetone, octyl dimethyl PABA, 2-phenylbenzimidazole-5-sulfonic acid, triethanolamine salicylate, zinc oxide, and titanium oxide, and mixtures thereof. The amount of sunscreen used in the cosmetically acceptable composition of this invention will vary depending on the specific UV absorption wavelength(s) of the specific sunscreen active(s) used and may be from 0.1 to 10 percent by weight, from 2 to 8 percent by weight.

[0097] The cosmetically acceptable composition of this invention may include one or more preservatives. Example of preservatives, which may be used include, but are not limited to 1,2-dibromo-2,4-dicyano butane (Methylidibromo Glutaronitrile, known as MERGUARD, Nalco Chemical Company, Naperville, IL, USA), benzyl alcohol, imidazolidinyl urea, 1,3-bis(hydroxymethyl)-5,5-dimethyl-2,3-imidazolidinedione (e.g., DMDM Hydantoin, known as GLYDANT, Lonza, Fairlawn, NJ, USA.), methylchloroisothiazolinone and methylisothiazolinone (e.g., Kathon, Rohm & Haas Co., Philadelphia, PA, USA), methyl paraben, propyl paraben, phenoxyethanol, and sodium benzoate, and mixtures thereof.

[0098] The cosmetically acceptable composition of this invention may include any other ingredient normally used in cosmetics. Examples of such ingredients include, but are not limited to buffering agents, fragrance ingredients, chelating agents, color additives or dyestuffs which may serve to color the composition itself or keratin, sequestering agents, softeners, foam synergistic agents, foam stabilizers, sun filters and peptizing agents. Inclusions of such agents, or of any other ingredients in trace amounts, do not alter the novel properties of this invention, and are not considered to exclude a composition from the scope of this invention.

[0099] The surface of pigments, such titanium dioxide, zinc oxide, talc, calcium carbonate or kaolin, may be treated with the unsaturated quaternary ammonium compounds described herein and then used in the cosmetically acceptable composition of
this invention. The treated pigments may then be more effective as sunscreen actives and for use in color cosmetics such as make up and mascara.

[00100] The cosmetically acceptable composition of this invention may be presented in various forms. Examples of such forms include, but are not limited a solution, liquid, cream, emulsion, dispersion, gel, thickening lotion.

[00101] The cosmetically acceptable composition of this invention contains an activated solution and may contain any cosmetically acceptable solvent. Examples of cosmetically acceptable solvents include, but are not limited to monoalcohols, such as alkanols having 1 to 8 carbon atoms (like ethanol, isopropanol, benzyl alcohol and phenylethyl alcohol) polyalcohols, such as alkylene glycols (like glycerin, ethylene glycol and propylene glycol) and glycol ethers, such as mono-, di- and tri-ethylene glycol monoalkyl ethers, for example ethylene glycol monomethyl ether and diethylene glycol monomethyl ether, used singly or in a mixture, from 0.1 to 70 percent by weight, relative to the weight of the total composition.

[00102] The cosmetically acceptable composition of one or more embodiments of the invention may also be packaged as an aerosol, in which case it may be applied in the form of an aerosol spray or in the form of an aerosol foam or similar aerosolable carriers. As the propellant gas for these aerosols, it is possible to use, in particular, dimethyl ether, carbon dioxide, nitrogen, nitrous oxide, air and volatile hydrocarbons, such as butane, isobutane, and propane.

[00103] The cosmetically acceptable composition of one or more embodiments of the invention may also contain electrolytes, such as aluminum chlorohydrate, alkali metal salts, e.g., sodium, potassium or lithium salts, these salts being halides, such as the chloride or bromide, and the sulfate, or salts with organic acids, such as the acetates or lactates, and also alkaline earth metal salts, typically the carbonates, silicates, nitrates, acetates, gluconates, pantothenates and lactates of calcium, magnesium and strontium.

[00104] Compositions for treating skin include leave-on or rinse-off skin care products such as lotions, hand/body creams, shaving gels or shaving creams, body washes, sunscreens, liquid soaps, deodorants, antiperspirants, suntan lotions, after sun gels, bubble baths, hand or mechanical dishwashing compositions, and the like. In addition to the polymer, skin care compositions may include components conventionally used in skin
care formulations. Such components include for example; humectants, petrolatum or mineral oil, fatty alcohols, fatty ester emollients, silicone oils or fluids, and preservatives. These components must in general be safe for application to the human skin and must be compatible with the other components of the formulation. Selection of these components is generally within the skill of the art. The skin care compositions may also contain other conventional additives employed in cosmetic skin care formulations. Such additives include aesthetic enhancers, fragrance oils, dyes and medicaments such as menthol.

[00105] The skin care compositions of this invention may be prepared as oil-in-water, water-in-oil emulsions, triple emulsions, or dispersions.

[00106] FIG. 2 illustrates a typical process for producing a skin care cosmetic. At step 201, as is typical for production of oil-in-water emulsions, an aqueous mixture of the water-soluble components, e.g., unsaturated quaternary ammonium compounds, humectants, water-soluble preservatives, is formed. In the method of one or more embodiments of the invention, this step is the formation of an activated solution, as described herein. Next, at step 202, a thickener with suspension power for water-insoluble materials is added to the aqueous solution. At step 203, the water-insoluble components are added to the aqueous solution. The water-insoluble components include the emulsifier, water-insoluble preservatives, petrolatum or mineral oil component, fatty alcohol component, fatty ester emollient, and silicone oil component. Finally, at step 204, mixing energy is added to for a composition of smooth and consistent appearance. The mixing energy required will be high and will be maintained for a time sufficient to form a water-in-oil emulsion having a smooth appearance (indicating the presence of relatively small micelles in the emulsion). Typical dispersions are generally prepared by forming an aqueous mixture of the water-soluble components, followed by addition of thickener with suspension power for water-insoluble materials.

[00107] In one or more embodiments of the invention, the aqueous mixture of step 201 is replaced with the activated solution described herein.

[00108] Compositions for treating hair include bath preparations such as bubble baths, soaps, and oils, shampoos, conditioners, hair bleaches, hair coloring preparations, temporary and permanent hair colors, color conditioners, hair lighteners, coloring and non-coloring hair rinses, hair tints, hair wave sets, permanent waves, curling, hair
straighteners, hair grooming aids, hair tonics, hair dressings and oxidative products. The
dispersion polymers may also be utilized in styling type leave-in products such as gels,
mousses, spritzes, styling creams, styling waxes, pomades, balms, and the like, either
alone or in combination with other polymers or structuring agents in order to provide
control and hair manageability with a clean, natural, non-sticky feel.

[00109] Hair care compositions of one or more embodiments of the invention may have
a slippery feel between the fingers, and may be easily rinsed from the hair due to the
presence of the dispersion polymer, volatile silicones, other polymers, surfactants or other
compounds that may alter the deposition of materials upon the hair.

[00110] In the case of cleansing formulations such as a shampoo for washing the hair, or
a liquid hand soap, or shower gel for washing the skin, the compositions contain anionic,
cationic, nonionic, zwitterionic or amphoteric surface-active agents typically in an
amount from about 3 to about 50 percent by weight, more typically from about 3 to about
20 percent, and their pH is general in the range from about 3 to about 10.

[00111] Typical shampoos of one or more embodiments of the invention contain
combinations of anionic surfactants with zwitterionic surfactants and/or amphoteric
surfactants. Examples of shampoos contain from about 0 to about 16 percent active of
alkyl sulfates, from 0 to about 50 weight percent of ethoxylated alkyl sulfates, and from 0
to about 50 weight percent of optional surface-active agents selected from the nonionic,
amphoteric, and zwitterionic surface-active agents, with at least 5 weight percent of either
alkyl sulfate, ethoxylated alkyl sulfate, or a mixture thereof, and a total surfactant level of
from about 10 weight to about 25 percent.

[00112] The shampoo for washing hair also may contain other conditioning additives
such as silicones and conditioning polymers typically used in shampoos. The
conditioning polymers for use with the present invention include the Polyquaterniums
(example Polyquaternium-1 to Polyquaternium-50), Guar Hydroxypropyl Trimonium
Chloride, Starch Hydroxypropyl Trimonium Chloride and Polymethacrylamidopropyl
Trimonium Chloride.

[00113] One or more embodiments consist of use in the form of a rinsing lotion to be
applied mainly before or after shampooing. These lotions typically are aqueous or
aqueous-alcoholic solutions, emulsions, thickened lotions or gels. If the compositions are
presented in the form of an emulsion, they may be nonionic, anionic or cationic. The nonionic emulsions consist mainly of a mixture of oil and/or a fatty alcohol with a polyoxyethyleneated alcohol, such as polyoxyethyleneated stearyl or cetyl/stearyl alcohol, and cationic surface-active agents may be added to these compositions. The anionic emulsions are formed essentially from soap.

[00114] If the compositions are presented in the form of a thickened lotion or a gel, they may contain thickeners in the presence or absence of a solvent. The thickeners that may be used are especially resins, Carbopol-type acrylic acid thickeners available from B.F. Goodrich; xanthan gums; sodium alginates; gum arabic; cellulose derivatives and polyethylene oxide) based thickeners, and it is also possible to achieve thickening by means of a mixture of polyethylene glycol stearate or distearate or by means of a mixture of a phosphoric acid ester and an amide. The concentration of thickener may generally be 0.05 to 15 percent by weight. If the compositions are presented in the form of a styling lotion, shaping lotion, or setting lotion, they may generally comprise the ampholyte polymers described above in aqueous, alcoholic or aqueous-alcoholic solution.

[00115] In the case of hair fixatives, the composition may also contain one or more additional hair fixative polymers. When present, the additional hair fixative polymers may be present in a total amount of from about 0.25 to about 10 percent by weight. The additional hair fixative resin may be selected from the following group as long as it is compatible with the chosen dispersion polymer: acrylamide copolymer, acrylamide/sodium acrylate copolymer, acrylate/ammonium methacrylate copolymer, an acrylate copolymer, an acrylic/acrylate copolymer, adipic acid/dimethylaminohydroxypropyl diethylenetriamine copolymer, adipic acid/epoxypropyl diethylenetriamine copolymer, allyl stearate/VA copolymer, aminooethylacrylate phosphate/acrylate copolymer, an ammonium acrylate copolymer, an ammonium vinyl acetate/acrylate copolymer, an AMP acrylate/diacetoneacrylamide copolymer, an AMPD acrylate/diacetoneacrylamide copolymer, butyl ester of ethylene/maleic anhydride copolymer, butyl ester of PVM/MA copolymer, calcium/sodium PVM/MA copolymer, corn starch/acrylamide/sodium acrylate copolymer, diethylene glycolamide/epichlorohydrin/piperazine-copolymer, dodecanedioic acid/cetearyl alcohol/glycol copolymer, ethyl ester of PVM/MA copolymer, isopropyl ester of PVM/MA copolymer, karaya gum, a methacryloyl ethyl

[00116] The cosmetic compositions of one or more embodiments of the invention may be formulated for a wide variety of forms, including but not limited to a solution, a suspension, an emulsion, a paste, an ointment, a gel, a cream, a lotion, a powder, a soap, a surfactant-containing cleanser, an oil, a powder foundation, an emulsion foundation, a wax foundation and a spray. In detail, the cosmetic composition of the present invention may be provided in the form of skin softener (skin lotion), astringent lotion, nutrient emulsion (milk lotion), nutrient cream, message cream, essence, eye cream, cleansing cream, cleansing foam, cleansing water, facial pack, spray or powder.

[00117] The cosmetically acceptable carrier contained in the embodiments of cosmetic composition may vary depending on the type of the formulation. For example, the formulation of ointment, pastes, creams or gels may comprise animal and vegetable fats,
waxes, paraffins, starch, tragacanth, cellulose derivatives, polyethylene glycols, silicones, bentonite, silica, talc, zinc oxide or mixtures of these ingredients.

[00118] In the formulation of powder or spray, it may comprise lactose, talc, silica, aluminum hydroxide, calcium silicate, polyamide powder and mixtures of these ingredients. Spray may additionally comprise the customary propellants, for example, chlorofluorohydrocarbons, propane, butane, diethyl ether, or dimethyl ether.

[00119] The formulation of solution and emulsion may comprise solvent, solubilizer and emulsifier, for example water, ethanol, isopropanol, ethyl carbonate, ethyl acetate, benzyl alcohol, benzyl benzoate, propylene glycol, 1,3-butylene glycol, oils, in particular cottonseed oil, groundnut oil, maize germ oil, olive oil, castor oil and sesame seed oil, glycerol fatty esters, polyethylene glycol and fatty acid esters of sorbitan or mixtures of these ingredients.

[00120] The formulation of suspension may comprise liquid diluents, for example water, ethanol or propylene glycol, suspending agents, for example ethoxylated-isostearyl alcohols, polyoxyethylene sorbitol esters and polyoxyethylene sorbitan esters, microcrystalline cellulose, aluminum metahydroxide, bentonite, agar and tragacanth or mixtures of these ingredients.

[00121] The formulation of cleansing compositions with surfactant may comprise aliphatic alcohol sulfate, aliphatic alcohol ether sulfate, sulfosucinate monoester, isethionate, imidazolium derivatives, methyl taurate, sarcosinate, fatty acid amide ether sulfate, alkyl amido betaine, aliphatic alcohol, fatty acid glyceride, fatty acid diethanolamide, vegetable oil, lanoline derivatives, ethoxylated glycerol fatty acid ester or mixtures of these ingredients.

[00122] Additional antioxidant ingredients and compositions may be selected from, but are not limited to, ascorbic acid, ascorbic acid derivatives, glucosamine ascorbate, arginine ascorbate, lysine ascorbate, glutathione ascorbate, nicotinamide ascorbate, niacin ascorbate, allantoin ascorbate, creatine ascorbate, creatinine ascorbate, chondroitin ascorbate, chitosan ascorbate, DNA ascorbate, carnosine ascorbate, vitamin E, various vitamin E derivatives, tocotrienol, rutin, quercetin, hesperedin (Citrus sinensis), diosmin (Citrus sinensis), mangiferin (Mangifera indica), mangostin (Garcinia mangostana), cyanidin (Vaccinium myrtillus), astaxanthin (Haematococcus algae), lutein (Tagetes
patula), lycopene (Lycopersicum esculentum), resveratrol (Polygonum cuspidatum),
tetrahydrocurcumin (Curcuma longa), rosmarinic acid (Rosmarinus officinalis), hypericin
(Hypericum perforatum), ellagic acid (Punica granatum), chlorogenic acid (Vaccinium
vulgaris), oleuropein (Olea europaea), $\alpha$-Lipoic acid, niacinamide lipoate, glutathione,
andrographolide (Andrographis paniculata), carnosine, niacinamide, potentilla erecta extract,
polyphenols, grapeseed extract, pycnogenol (Pine Bark extract), pyridoxine, magnolol, honokiol,
paeonol, resacetophenone, quinacetophenone, arbutin, kojic acid, and combinations thereof.

[00123] The blood micro-circulation improvement ingredients and compositions may be
selected from, but not limited to, horse chestnut extract (Aesculus hippocastanum extract)),
esculin, escin, yohimbine, capsicum oleoresin, capsaicin, niacin, niacin esters, methyl nicotinate,
benzyl nicotinate, ruscogenins (Butchers Broom extract; Ruscus aculeatus extract), diosgenin
(Trigonella foenumgraecum, Fenugreek), emblica extract (Phyllanthus emblica extract), asiaticoside
(Centella asiatica extract), boswellia extract (Boswellia serrata), ginger root extract (Zingiber Officianalis),
piperine, vitamin K, melilot (Melilotus officinalis extract), glycyrrhetinic acid, ursolic acid, sericoside
(Terminalia sericea extract), darutoside (Siegesbeckia orientalis extract), amni visnaga extract,
extraict of red vine (Vitis Vinifera) leaves, apigenin, phytosan, luteolin, and combinations thereof.

[00124] The anti-inflammatory ingredients or compositions may be selected from, but
not limited to, at least one antioxidant class of cyclo-oxygenase (for example, COX-1 or
COX-2) or lipoxygenase (for example, LOX-5) enzyme inhibitors such as ascorbic acid,
ascorbic acid derivatives, vitamin E, vitamin E derivatives, tocotrienol, rutin, quercetin,
hesperedin (Citrus sinensis), diosmin (Citrus sinensis), mangiferin (Mangifera indica),
mangostin (Garcinia mangostana), cyanidin (Vaccinium myrtillus), astaxanthin
(Haematococcus algae), lutein (Tagetes patula), lycopene (Lycopersicum esculentum),
resveratrol (Polygonum cuspidatum), Tetrahydrocurcumin (Curcuma longa), rosmarinic
acid (Rosmarinus officinalis), hypericin (Hypericum perforatum), ellagic acid (Punica
granatum), chlorogenic acid (Vaccinium vulgaris), oleuropein (Olea europaea), $\alpha$-lipoic
acid, glutathione, andrographolide, grapeseed extract, green tea extract, polyphenols,
pycnogenol (Pine Bark extract), white tea extract, black tea extract, (Andrographis
paniculata), carnosine, niacinamide, and emblica extract. Anti-inflammatory composition
may additionally be selected from, but not limited to, horse chestnut extract (Aesculus hippocastanum extract), esculin, escin, yohimbine, capsicum oleoresin, capsaicin, niacin, niacin esters, methyl nicotinate, benzyl nicotinate, ruscogenins (Butchers Broom extract; Ruscus aculeatus extract), diosgenin (Trigonella foenumgraecum, Fenugreek), emblica extract (Phyllanthus emblica extract), asiaticoside (Centella asiatica extract), boswellia extract (Boswellia serrata), sericoside, visnadine, thiocolchicoside, grapeseed extract, ginger root extract (Zingiber Officianalis), piperine, vitamin K, melilot (Melilotus officinalis extract), glycyrrhetinic acid, ursolic acid, sericoside (Terminalia sericea extract), darutoside (Siegesbeckia orientalis extract), amni visnaga extract, extract of red vine (Vitis-Vinifera) leaves, apigenin, phytosan, luteolin, and combinations thereof.

[00125] Certain divalent and polyvalent metal ions may also be present in the compositions of one or more embodiments of the invention. The examples of such metal ions include zinc, copper, manganese, vanadium, chromium, cobalt, and iron.

[00126] While the invention herein disclosed has been described by means of specific embodiments and applications thereof, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope of the invention set forth in the claims.
CLAIMS

What is claimed is:

1. A method of making an activated solution comprising:
   providing water;
   adding a plurality of therapeutic ingredients to said water as a mixture, wherein said plurality of therapeutic ingredients comprises:
   a calcium material;
   a limestone material;
   a hiba substance; and
   a tourmaline material;
   heating said mixture to activate said mixture; and,
   filtering said mixture to produce an activated solution for use in formulation of a skin care composition.

2. The method of claim 1, wherein said mixture is heated at a range of about 90°C to 99°C.

3. The method of claim 1, wherein said heating step further comprises heating said mixture until a pH indicator indicates a pH of about 7.6 - 8.1.

4. The method of claim 1, wherein said heating step occurs for at least 15 minutes.

5. The method of claim 1, wherein said therapeutic ingredients are added to said water via a water-permeable pouch.

6. The method of claim 1, wherein said therapeutic ingredients are added to said water via a wooden container.

7. The method of claim 6, wherein said wooden container is made of Hiba wood.

8. The method of claim 1, wherein said hiba substance comprises hiba oil.
9. The method of claim 1, wherein said calcium material comprises calcium carbonate.

10. The method of claim 1, wherein limestone material comprises fossil.

11. The method of claim 1, wherein said tourmaline material is comprise a ceramic and where said tourmaline material not less than 10% by weight tourmaline.

12. A personal care composition comprising:
   a cosmetically acceptable carrier; and,
   an activated solution prepared according to the method of claim 1

13. The personal care composition of claim 12, wherein said activated solution is present in an amount from about 50% to 95% by weight of said personal care composition.

14. The personal care composition of claim 12, wherein said personal care composition further comprises a nutrient selected from the group consisting of vitamins, essential amino acids, essential fatty acids, and cosmetically acceptable salts and esters thereof.

15. The personal care composition of claim 14, wherein said nutrient is selected from the group consisting of vitamin A, vitamin E, essential amino acids, and cosmetically acceptable salts and esters thereof.
FIGURE 1

101 PROVIDE WATER

102 ADD SELECTED INGREDIENTS TO WATER AS A MIXTURE

103 ACTIVATE MIXTURE

104 FILTER MIXTURE TO PRODUCE ACTIVATED SOLUTION
FIGURE 2

201. Form an aqueous mixture of water-soluble components

202. Add a thickener with suspension power

203. Add water-insoluble components

204. Add energy to mix the components to form a smooth water-in-oil emulsion

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FIGURE 4

401 PROVIDE A VESSEL WITH AN AMOUNT OF WATER

402 ADD SELECTED INGREDIENTS IN A WATER-PERMEABLE CONTAINER

403 PLACE THE CONTAINER IN THE WATER

404 HEAT THE VESSEL TO A TEMPERATURE AND FOR A LENGTH OF TIME

405 ALLOW THE VESSEL TO COOL

406 FILTER THE CONTENT OF THE VESSEL TO PRODUCE ACTIVATED SOLUTION
INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/69379

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - A61K 31/74 (2008.04)
USPC - 424/78.03

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
USPC - 424/78.03

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 424/401, 78.03; 514/2; search terms below

Electronic database consulted during the international search (name of database and, where practicable, search terms used)
Electronic Databases Searched: USPTO WEST (PGPUB, EPAB, JPAB, USPT), Google Scholar, Google Patent, Search Terms Used - limestone and hiba, vitamin or fatty acid, calcium hydroxide or calcium oxide, limestone, skin care products, calcium adipate carbonate

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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</thead>
<tbody>
<tr>
<td>Y</td>
<td>US 5,626,854 A (Choi et al.) 06 May 1997 (06.05.1997) entire document especially abstract; col 3, in 05-18; col 1, in 51-58; col 4, in 34</td>
<td>1-15</td>
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</table>

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