Title: **Nail varnish comprising at least one resin**

USP Application: **USP 20080145325**

Serial Code & No **11/898532**

Date of filing: **September 13, 2007**

Inventors: **Coffey-Dawe; Lizabeth-Ann; France**

Claimed is a nail varnish composition comprising an organic solvent, a gelling agent and at least one ketone/aldehyde resin for the non-therapeutic care of the nails and also for obtaining a glossy film after deposition on the nail.

The organic solvent may be any typical of nail varnish compositions but short-chain esters comprising 3 to 8 carbon atoms are specifically mentioned. These include ethyl acetate, methyl acetate, propyl acetate, isopropyl acetate, n-butyl acetate, isopentyl acetate, methoxypropyl acetate, butyl lactate, and mixtures thereof.

Ketone/aldehyde resins are the products of the polycondensation of mixtures of at least one ketone and of at least one aldehyde. Non-limiting examples of suitable ketones include acetone, acetophenone and methyl ethyl ketone of which acetophenone is preferred. At least one aldehyde used for the synthesis of the ketone/aldehyde resins is chosen from formaldehyde and mixtures of formaldehyde with other aldehydes. The ketone/aldehyde-resins may be hydrogenated in the presence of a suitable catalyst whereby the carbonyl group is converted into a hydroxyl group. They may be further modified by reacting them with isophorone diisocyanate.

The composition also includes one or more film-forming polymers and a plasticiser and a suitable gelling agent such as hydrophobic silica or an organophilic clay, benzyldimethylammonium stearate being a preferred example. Suitable pigments and dyestuffs, pearling agents and other additives commonly found in nail varnish compositions are included to improve product stability and aesthetic appeal.

Title: **Method of applying makeup to a surface by means of a magnetic composition including reflective particles having metallic lustre**

USP Application: **USP 20080127990**

Serial Code & No **11/663975**

Date of filing: **July 8, 2005**

Assignee: **L'Oreal, Paris**

Described are cosmetic compositions that contain particles movable under the effect of a magnetic field. The particles are described as having non-zero magnetic susceptibility and constitute at least in part of reflective particles. These include a substrate selected from a group that includes glasses, ceramics, graphite, metal oxides, aluminas, silicas, aluminosilicates and borosilicates, synthetic mica, and mixtures thereof, coated with at least one metallic compound.

The magnetic bodies may comprise any metal that is sensitive to a magnetic field but soft iron is preferred. The particles are preferably an elongate shape, so when they are subjected to the magnetic field, they tend to become oriented with their longitudinal axes in alignment with the field lines. A number of suitable materials are commercially available from Merck, BASF, and Eckart and from Engelhard and these are listed.

Not all particles cited in the patent are reflective; also described is a magnetic latex containing grains of ferrite that are evenly distributed in a polystyrene matrix. The latex contains 65% iron oxide, the mean diameter of the polystyrene particles being 890 nm, and the dry material mass content being 10%. It is also possible to use colloidal suspensions of nano particles of iron.

The composition is preferably in powder form and applied by brush. The magnetic field is preferably generated by an electromagnet, which when switched on and brought to the surface where the composition has been applied; it is capable of orientating the particles into patterns. Liquid compositions are suggested for nail enamel compositions and these generally include a volatile organic solvent and a film-forming polymer.

It is suggested that novel makeup effects are possible by applying the magnetic field and that it is also possible to modify the clarity of the composition and thus to model the appearance of the face in the regions exposed to the magnetic field. By way of example, the magnetic field may be applied so as to darken the sides of the face to make it appear thinner than it really is.

Title: Botanical butter stick lip balm

USP Application: USP 20080089916

Serial Code & No 11/904927

Date of filing: September 28, 2007

Assignee: Wyeth, NJ.

Claimed is a stick lip balm that comprises at least 90% botanically derived materials and can be formed into a stick sufficiently robust to substantially retain the stick shape under normal conditions of shipping, storage and usage.

The applicants claim that conventional stick lip balms formed using petroleum derived base waxes, while having protective properties, may not replenish natural lip lipids as well as naturally derived lipids and thus may not maintain natural moisture balance and prevent drying, chapping and cracking of lips.

The composition described includes carnauba wax, candelilla wax, jojoba esters, botanical butters and at least one additional moisturising agent. At least three different botanical butters selected from an extensive group of these are present in the formulation. The total amount of butter is typically about 2% to about 20%.The moisturising agent is one or more botanical oils and a mixture of coconut oil with sunflower oil is preferred.

The amount of beeswax, carnauba and candelilla is preferably less than 20% of the total composition with the amount of beeswax preferably less than 5% of the total composition. Conventional waxes, particularly beeswax while useful for imparting structural support, also impart a rigidity that does not favourably contribute to a rich, soft, smooth lip feel, claim the applicants. To obtain both the emollient properties and desired structure a mixture of jojoba esters is used. A mixed jojoba ester with a melting point range of 47-51° C is used in combination with a mixed jojoba ester having a melting point range of 56-61°C and the total amount of jojoba ester is about 5% to about 50% of the total composition. The claimed ranges for constituents are very wide throughout the patent. The composition also includes tocopherol as an antioxidant, a natural flavour and may contain colour and other ingredients to improve its aesthetics and stability. An example formulation is given as follows:

Amount Ingredient	**% wt/wt**
Yellow Beeswax	3.50
Shea butter	0.75
Coconut oil	10.75
Carnuauba wax	1.25
Candelilla wax	13.00
Flavouring	4 .00
Mango butter	0.75
Tocopheryl acetate	1.00
Tocopherol	0.20
Avocado butter	0.75
Jojoba esters (mpt 56-61°C)	8..00
Jojoba esters (mpt 47-51°C)	11.00
Olive butter	0.75
Raspberry butter	0.75
Sunflower seed oil	43.55

Hair straightening is a common requirement in hairdressing, which generally requires the application of thioglycollates or strong alkalies. Both methods can be irritating to the scalp and cause significant damage to the hair. The three patent abstracts that follow suggest alternative methods; the first is based on the use of adenine as the active ingredient; the second uses a sugar compound and the third method utilises urea in combination with a mixture of plant extracts.

Title: Method of treating hair

US Patent: 8,182,798

Appl. No. 12/598,039

Date Granted: 22-05-12

Assignee: Conopco, Inc.

Claimed is a method of hair styling or straightening comprising: an active ingredient selected from adenine, guanine or derivatives thereof. In the preamble the applicants state that a problem with straightened hair is that once the straightening process has taken place hair tends to increase in volume causing it to appear fluffy, this is especially troublesome in humid conditions. The patent claims that compositions containing adenine or guanine can be used to impart humidity resistance to straightened hair and thus retain its style.

The preferred active is adenine, most preferably comprising from 0.1 wt % to 5 wt % of the total composition. An organic acid is required to act as a solvent for the adenine and either tartaric or citric acid is preferred and this is present at from 1 – 10% in a ratio of 1:1 to 1:1:5 adenine to organic acid. Tests show that the ideal pH is approximately 6 so the organic acid requires partial neutralisation with triethanolamine.

The patent claims that the presence of styling aids is advantageous and materials such as vinyl polymers are preferred, in particular block copolymers, preferably comprising 0.75 to 6% by weight based on total weight of the composition. However virtually all known styling polymers are mentioned as being suitable and the preferred product form is a leave-in hair conditioner. In an example formulation the conditioner contains a 50% anionic emulsion of dimethiconol and TEA-dodecylbenzenesulfonate and the conditioning aid is cetrimonium chloride with cetearyl alcohol. After application of the preferred composition the hair is straightened by the use of heat and ceramic tongs.

Decorative cosmetics are the theme for these 3 patent abstracts; two suggest improvements to non-transfer lipsticks and the third describes encapsulated fluorescent compounds.

Title: Composition containing a semi-crystalline polymer and a volatile oil

US Patent: 8,142,765

Application No. 10/502,447

Date Granted: March 27, 2012

Assignee: L'Oreal S.A

Non-transfer lipsticks are available in the market place but users often complain of the lack of comfort and gloss of these types of product. The inventors claim to have improved the application of such products using the combinations described in the patent.

Claimed is a makeup composition comprising at least one liquid fatty phase structured with at least one semi-crystalline polymer having an organic structure, a colorant and a volatile oil. The composition is in the form of a stick which on keratin materials, particularly the lips, lays down a glossy film that does not undergo transfer to objects with which the keratin materials come into contact.

The volatile oil is a cyclomethicone, dimethicone or a volatile hydrocarbon such as isododecane, isodecane, and isohexadecane or isohexyl neopentanoate, used singularly or in combination. Preference is given to a mixture of isododecane with cyclopentasiloxane. The volatile oils comprise from 30% to 40% of the total composition and represent 45% to 55% of the total liquid fatty phase.

The liquid fatty phase comprises a polar oil and isononyl isononanoate and the semi-crystalline polymers in the mixture are soluble in the liquid fatty phase at a temperature greater than their melting temperature. At least one semi-crystalline polymer is chosen from block copolymers of polyolefins of controlled crystallization, aliphatic or aromatic volatile polycondensates and aliphatic/aromatic volatiles, homopolymer or copolymers bearing at least one crystallisable side chain, and mixtures thereof. Preferred are two polymers; one with a melting point above 50°C and a second with a melting point between 30°C and 50°C.

In addition the lipstick will contain suitable dyes and pigments in an amount necessary to impart the desired shade and further polar and non-polar oils and waxes to giver the desired hardness and payoff plus flavouring and other ingredients to improve the aesthetics and shelf-life of the final composition.

Continuing the theme of the Body Beautiful we have two patents about exfoliation and one containing a DNA repair enzyme.

Title: Emollient skin conditioning cream and method

USP Application: 7,749,523

Serial Code & No. 09/964,143

Date of filing: September 25, 2001

Assignee: Crabtree & Evelyn, Ltd.

Claimed is a cosmetic exfoliating composition for use in cleansing and conditioning the skin of the hands, face, heels, knees, elbows and body of a human being that is stable and does not leave a greasy or tacky after-feel when applied to and rinsed from skin with water and the skin is dried.

There are different compositions to treat the different areas but each essentially comprises an emollient mixture of oils and waxes, fatty alcohols, esters and acids; a mildly abrasive scrubbing agent and a surfactant and all are virtually non-aqueous. The emollient mixture may consist of macadamia seed oil; fatty acyl or alkyl group esters such as isopropyl myristate, sucrose distearate, and caprylic/capric triglyceride; the fatty alcohol is cetyl alcohol and the fatty acid is stearic acid. In addition the composition may contain shea butter and emulsifying wax.

The surface active agent is sodium cocoyl N-methyl taurate in the range 0.4 – 8% and calcium stearate is present to thicken the composition. The scrub agents vary according to the area to be treated; thus sodium chloride is used for the hands and pumice for the heels, knees and elbows. A starch material or vegetable flour may also form part of the abrasive system and in total this will represent from 15% to 40% of the composition.

The amounts of surfactant vary with the area of the body being treated; most preferably 0.7% to 1.3% by weight for the hand buffing composition; 4.0% to 6.0%, for the face and body buffing compositions; and 3.5% to 6.0%, by weight for the heels/knees/elbows buffing product.

For environmental and skin safety reasons, water-soluble inorganic salts, particularly sodium chloride, are preferred because they do not pollute the environment after the compositions are rinsed from the skin. Usually, a material such as starch or a hydrolyzed starch will be present

Title: Loose powders turning into liquids under cosmetic application

US Patent: 8,226,961

Appl. No. 10/527,948

Date Granted: July 24, 2012

Assignee: LCW, France

Claimed is a method for the preparation of cosmetic compositions having the texture of a cream when applied to the skin. The composition comprises a liquid phase (A); a powder containing a gelling agent (B) and optionally, (C), an active cosmetic ingredient.

The liquid phase is encapsulated or immobilised in a solid carrier and the powder phase includes starch modified by carboxymethyl groups. The solid carrier consist of mineral particles with a hydrophobic surface such as titanium dioxide treated with a silane group, a fluorinated group, or a combination thereof. A variation is described where the gelling agent is made up in whole or in part of particles of modified mica and the mineral particles comprise metallic oxide particles with lipophobic groups grafted on their surface.

When the composition is applied to the skin the gelling agent is released and the powder takes on the appearance and texture of a cream. The phases may also be packaged separately and brought into contact just prior to use.

The liquid phase is described as a phase of aqueous or oily nature or as a water-in-oil type emulsion in which case it would be considered an "oily nature" phase or an oil-in-water type in which case this phase would be considered as an "aqueous nature" phase. The powder phase is characterised by particles that have a weak affinity for the liquid phase. That is the particles have a hydrophobic surface nature if phase (A) is aqueous, and a hydrophilic surface nature if phase (A) is oily. The particles are preferably of less than 100 nanometres in diameter.

The active cosmetic ingredient (C) is described as any compound or mixture of compounds that can confer a cosmetic character to the composition, for example by conferring an optical effect to this composition such as a colorant, lightener or sun block, or a treatment effect with a cosmetic character like as perfume, antiperspirant, moisturiser or slimming agent. This may form part of either phase A or phase B depending on its nature.

Protection against solar radiation continues to be one of the most important aspects of human skin care. These three patents include one on improving delivery from pump-action spray dispensers; one on improving the solubility and stability of UV-A sunscreens and one on a potential new UV-A absorber.

Title: Cosmetic composition containing microcrystalline cellulose

US Patent: 7,815,924

Application No. 10/528,317

Date Granted: October 19, 2010

Assignee: FMC Corporation

The ability of pump-driven delivery systems to deliver a cosmetic composition as a finely divided spray is critically dependent upon the rheology of the cosmetic composition, particularly its viscosity at the exit port of the spray pump. As the viscosity of the composition decreases at the exit port, the spray pattern becomes more divided and produces a more desirable delivery by evenly covering a large area. Conversely, as the viscosity increases, the spray pattern becomes less divided and more stream-like, yielding a less desirable delivery, either by covering only a small area or by unevenly covering a larger one.

Sunscreen compositions having low viscosity at high shear rates tend to be easy to spread on the skin and can produce more even coverage and, hence, higher sun protection factors. However, these compositions have a number of deficiencies. They tend to drip or run after application and thus need to be spread immediately after application.

Other problems with spray-type formulations are that stable oil-in-water emulsions are difficult to prepare at very low viscosities and it is difficult to achieve good long term suspension of inorganic sunscreen agents, such as titanium dioxide or zinc oxide.

In order to overcome these drawbacks, claimed is a spray-type cosmetic composition that comprises one or more sunscreen agents plus emulsifiers; emollients; a rheology control agent and water. The rheology control agent is microcrystalline cellulose. When sprayed on the skin or hair the composition produces a fine mist that deposits evenly with no dripping and without forming aggregates.

The sunscreen agent may be an organic or inorganic sunscreen agent or a mixture of these to provide an SPF of at least 12. The basic composition can be any suitable sunscreen

Self-tanning products are very popular but almost universally rely on DHA, which can be a difficult material to incorporate into stable compositions that give an even brown colouration to the skin. Following are three different approaches to the problem.

Title: Self-tanning cosmetic

USP Patent: 7,875,264

Serial Code & Appl No 11/920,325

Date of filing: August 5, 2005

Assignee: Shiseido Co. Ltd

The stated objective of the patent is to provide a cosmetic that has superior storage stability and achieves both a decorative effect immediately following application and a sustained dyeing effect by dihydroxyacetone (DHA).

The patent describes a self tanning cosmetic containing 0.2-20.0 % of DHA and 0.1-10.0 % of an inorganic pigment powder the surface of which is coated with silica followed by a hydrophobic treatment. The composition claims superior storage stability; to be free of discoloration and odour generation and to achieve both the decorative effect of the pigment on application and a long term dyeing effect by dihydroxyacetone.

The composition is a water-in-oil emulsion formed using 3.0-3.3% of emulsifiers; the emulsifiers comprising a polyether-modified silicone such as branched dimethyl silicone copolyol. The inorganic pigment may be sericite, mica, titanium oxide, talc, kaolin, and iron oxide. These can be used either independently or in combinations of two or more. The pigment is coated in silica and the hydrophobic surface treatment is provided by octyltriethoxysilane. The coated pigment preferentially forms about 2% of the composition and is dispersed in the oil phase, which can be a combination of suitable oils, fats and waxes for cosmetic use.

Dihydroxyacetone is preferably present at about 5% and is dispersed in the aqueous phase, which should also contain 5% alcohol and a polyol to improve stability. This is added to the oil phase with stirring and the temperature should not exceed 45ºC. The polyol is preferably dipropylene glycol added at about 3%. Other suitable ingredients added as humectants include glycerine, sorbitol, polysaccharides such as hyaluronic acid, amino acids such as pyrrolidone carboxylic acid and other water soluble materials. Sodium pyrosulfite is added at 0.02% as a

It is generally understood that as skin ages the free amino acids in the stratum corneum decrease and skin becomes drier. These amino acids originate from the proteolysis of filaggrin and it is possible to compensate for this deterioration by stimulating protease activity for degradation of this protein**.** The first two patents are different ways of achieving this aim. The third describes the inhibitory effect on the release of elastase in ageing skin by an extract of leaves of the *Castanea sativa* plant.

Title: Treatment and composition for achieving skin anti-aging benefits by corneum protease activation

US Patent: 8,182,799

Serial Code & Appl. No. 12/479,079

Date Granted: May 22, 2012

Assignee: Mary Kay, Inc.

Claimed are compositions for treating aged and environmentally damaged skin which provide improvements in the skin's visual appearance, function and clinical and biophysical properties by activating at least one proteolytic enzyme in the stratum corneum. Corneum protease activation refers to the stimulation, of one or more of the endogenous stratum corneum protease enzymes believed to be involved in the natural desquamation process of corneocyte shedding and subsequent stratum corneum turnover.

It appears that physical or chemical changes to the intact stratum corneum of the skin result in epidermal basal cell replication and subsequent increases in epidermal cell renewal. If the damage stimulus is well controlled, the process of epidermal replacement results in a healthier, better-functioning epidermis and a stratum corneum which looks and feels better, has greater capacity to hold moisture, and has fewer surface fine lines.

The compositions contain a combination of a cationic and anionic surfactants and a chelating agent to stimulate a chronic increase in the replacement rate of the skin's stratum corneum by means of corneum protease activation. It is claimed that this chronic, low level stimulation is effective to induce repair and replacement of the stratum corneum, epidermis, and dermis of the skin and improvements in the appearance, function, and anti-aging properties of the skin.

The preferred cationic surfactant is N,N,-dimethyldodecyl amine oxide at a level of 0.36%; the preferred anionic is sodium dodecyl sulfate or a monoalkyl phosphate at 0.12%and the

3 Patents in which the theme is transdermal delivery systems but in which the approach to achieving this result is quite different.

Title: Mixture for transdermal delivery of low and high molecular weight compounds

Patent: USP 7,316,820

Serial Code & No 11/411,293

Date of filing: April 26, 2006

Assignee: JRX Biotechnology, Inc.

.Described is a transdermal delivery system that can deliver high molecular weight pharmaceuticals and cosmetic agents to skin cells. According to the applicants most transdermal delivery systems achieve epidermal penetration by using a skin penetration enhancing ingredient. While many of these enhance transdermal absorption, several possess certain drawbacks in that some are regarded as toxic, some irritate the skin; some have a thinning effect on the skin after prolonged use and all are incapable of delivering high molecular weight pharmaceuticals and cosmetic agents.

The delivery system described in the patent comprises an ethoxylated oil or fatty acid, fatty alcohol, or fatty amine having 10-19 ethoxylations per molecule. It is claimed that the system can deliver a wide range of pharmaceuticals and cosmetic agents having molecular weights of less than 100 Daltons to greater than 500,000 Daltons including low and high molecular weight peptides.

The ethoxylated lipid can be a vegetable, nut, animal, or synthetic oil or fatty acid, fatty alcohol, or fatty amine but the preferred oils include macadamia nut oil and meadowfoam (limnanthes alba) oil. Examples of the claims all include ethoxylated oil but other ingredients depend on the solubility of the active agent to be delivered. Some agents were soluble and stable in ethoxylated oil/alcohol emulsions or in ethoxylated oil/water emulsions, ethoxylated oil/alcohol/water emulsions or ethoxylated oil/alcohol/water/Aloe Vera emulsions. The systems described also include fragrances and ingredients that stabilise the formulation, facilitate delivery, or protect the active agent from degradation.

There are many suggested applications for both pharmaceutical and cosmetic applications. Among the latter are transdermal delivery systems to brighten the skin, reduce age spots or skin discolorations, reduce stretch marks, and reduce spider veins or to add dyes and tattoo

Many patents are filed without disclosing their purpose; examples are the first two shown here, the first of which describes an aloe gel composition with exfoliating properties and the second describes a moisturiser based on natural ingredients.

Title: Cosmetic composition and methods of use

US Patent: 8,178,113

Serial Code & Appl. No. 11/695,387

Date Granted: May 15, 2012

Assignee: Abdullah; Sheikh Ahmed

Claimed is a cosmetic composition that includes aloe vera gel, an exfoliant, vitamin C and vitamin A to enhance the general tone, glow, and firmness of the skin and to treat signs of aging, such as wrinkling and fine lines, leathering, yellowing, sagging and hyperpigmentation.

The exfoliant may be an enzyme or a mono- or poly-hydroxy acid such as an alpha.-hydroxy acid, beta.-hydroxy acid or tannic acid. A preferred mixture includes about 2 % to about 10% glycolic acid, about 2% to about 10% lactic acid, about 2% to about 5% salicylic acid, and about 3% to about 8% gluconolactone. To improve the effectiveness of the exfoliant the pH is buffered to between 2 and 3.7.

Aloe vera is an anti-inflammatory that soothes the skin, reduces itching, and relieves skin irritation and is generally recognised as a wound healing agent and to aid in delivery of active ingredients to skin. The particularly preferred level of aloe vera gel is about 48% to about 50% and by being the predominant ingredient the composition may be referred to as an Aloe gel composition, claims the patent.

Vitamin C is provided in encapsulated form to prevent oxidation by the alpha-hydroxy acids and this preferably represents between 10% and 20% of the composition, and an active level of 2 – 4% ascorbic acid. Vitamin A is an optional component but, when it is present, it is in the form of retinyl propionate and preferably at a concentration of about 1.0 %. Vitamin E is an optional component but when present is preferably there at about 0.1%.

Additional ingredients commonly used in cosmetic compositions include preservatives, colorants, fragrances, opacifiers, emulsifiers, and stabilisers that enhance the aesthetics and shelf-life of the final composition.

Title: Cosmetic composition and a process for preparing said composition

Sunless tanning products are growing in popularity. They are generally based on dihydroxyacetone (DHA), which reacts with amino acids present in the sebum and stratum corneum by the Maillard reaction to give a brownish colour. Unfortunately the distribution and nature of the amino acids is not uniform on the skin surface and because of that the intensity and shade of the colour obtained may vary thereby causing the skin to have an unnatural look. Another drawback of DHA is the length of time the coloration takes to develop thus there is a demand for fast-acting self-tanning products which give a coloration closer to that of a natural tan. Following are four patents that claim to offer improved compositions for sunless tanning.

Title: Sunless tanning composition and method of sunless tanning

US Patent: 7,378,084

Serial Code & Application No. 11/174,044

Date Granted: May 27, 2008

Assignee: Playtex Products, Inc

Claimed is a sunless tanning composition having dihydroxyacetone (DHA) and an amphoglycinate, which is said to provide fast development of a uniform, more intense, long-lasting and natural looking tan. Amphoglycinates are also known as amphoacetates and particularly preferred is sodium cocoyl amphoacetate and the sodium salts of oliveamphoacetate; sunflowerseed amphoacetate; cocoabutter amphoacetate; sesame amphoacetate and sweet almond amphoacetate. It is claimed that if one or more of the amphoacetates is added to the vehicle containing DHA they improve such sunless tanning preparations.

Depending on the concentration of the active, colour development starts within 4-6 minutes after the composition is applied. This is much faster than colour development provided by the combination of DHA and polyamines that typically starts within 30 minutes. It is also claimed to provide a uniform and natural looking sunless tan over all treated skin surfaces at a rate faster than known formulations. In addition, amphoglycinates, especially sodium oliveamphoacetate, have good foaming capabilities; they respect the integrity of skin's hydrolipid barrier, and are extremely mild and non-irritating to the skin in human patch tests.

Title: Magnolia extract containing compositions

US Patent: 8,084,066

Serial Code & Appl. No. 12/706,557

Date Granted: December 27, 2011

Assignee: Mary Kay Inc

Claimed is a composition for increasing firmness or elasticity or reducing the appearance of dark circles and sagginess in the periorbital area of a person's skin. The composition comprises extracts of Magnolia bark and vitis vinifera with tocopherol or tocopherol acetate; and hydrogenated lecithin, lecithin, or dextrin.

According to the applicants, active ingredients identified in Magnolia flower, bark and seed cone extracts include magnolol, dihydroxydihydromagnolol, honokiol, and dihydrohonokiol. These are polyphenolic compounds and it is claimed that Magnolia extract can reduce the blood flow near the skin surface though vasoconstriction, inhibition of angiogenesis and endothelial cell migration.

Other active ingredients that are optional components of the composition include extracts of humulus lupulus, corylus avellana buds, cucumis sativa and citrus medica limonum and avena sativa kernel. Ascorbyl glucoside may be present to brighten or even skin tone by inhibiting tyrosinase activity. Additional optional materials include hydrolyzed soy protein, hesperidin methyl chalcone, dipeptide valyl-tryptophane and palmitoyl tetrapeptide-3. The claimed properties of these and other materials mentioned in the patent are each fully described.

The active principles may be combined in any cosmetically acceptable vehicle suitable for topical application in the eye area. Illustrative formulations are given with the results of extensive clinical trial that show a reduction in puffy eyes and dark circles and a general improvement in skin radiance. In-vitro studies on the effects of some ingredients on the inhibition of tyrosinase activity are also described.

Title: Topical compositions containing CIS-6-nonenol and its derivatives and methods for treating skin

US Patent: 8,128,914

Serial Code & Appl. No. 13/165,876

Title: Epilatory compositions

US Patent: 8,038,723

Serial Code & Application No. 12/448,716

Date of filing: February 19, 2008

Assignee: Reckitt & Colman

Described is an epilatory composition comprising a gel-like matrix material, for example a rosin-based or sugar-based material, and mixed with the matrix material, colloidal particles of fumed silica and a polyethylene in the form of a homopolymer. The particles reduce the tendency of the epilatory composition to flow, under warm ambient conditions with improved efficacy over known epilatory compositions.

The fumed silica is present in an amount up to 10% wt/wt but preferably forms about 2% of the epilatory composition and the polyethylene is present in the range 0.1% to 5% by weight of the composition although about 1% is particularly preferred.. The rosin forms at least 60% but more likely at least 80% of the total composition, which is provided as flat strips between sheets of cellophane that can be peeled away.

It is believed that the particles form a network throughout the epilatory composition, providing a structure or backbone which inhibits its flow at warm temperatures. Other components may include one or more of a natural wax, a fragrance, a polymer, an essential oil, silicone oil, a colorant, an anti-oxidant or a paraffin or mineral oil.

In use, the user peels away one of the cellophane sheets, presses the epilatory strip firmly onto the area to be plucked, then pulls one end of the remaining sheet sharply away from the area. The hairs trapped in the composition are removed from the treated area along with the composition still attached to the remaining backing strip. The strips can be readily applied to the skin at body temperature and are very efficient at removing hairs from the skin and, surprisingly, the user experiences little pain, say the inventors. An illustrative formula follows.

Ingredients	% wt/wt
triethylene glycol rosinate	64.777%
Glyceryl rosinate	31.803%

Oral care compositions generally consist of toothpastes, including gels, and mouthwashes. The following patent abstracts describe such compositions.

Title: Cleaning oral care compositions

US Patent: 8,293,216

Appl. No. 12/624,585

Date Granted: Oct. 23, 2012

Assignee: The P&G Co.

An effective oral composition can maintain and preserve tooth appearance by removing dental stains and polishing the teeth. It may clean and remove external debris as well, which can aid the prevention of tooth decay and promote gingival health. Abrasives in oral compositions aid in the removal of the tightly adherent pellicle film that usually comprises a thin glycoprotein-mucoprotein coating, which adheres to the enamel within minutes after teeth are cleaned.

Claimed is an oral care composition comprising a fused silica abrasive that offers improved cleaning. Preferably the fused silica abrasive has a median particle size from about 5 microns to about 10 microns, and 90% of the particles have a particle size of about 15 microns or less. The fused silica represents 5% to 20% of the total composition and a second abrasive material is selected from the group consisting of precipitated silica, calcium carbonate, rice hull silica, silica gels, aluminium silicates and phosphates. Other inorganic particulates include surface treated and de-hydrated precipitated silica, and mixtures thereof and these are preferred.

The abrasive combination is incorporated in a suitable carrier and may contain any material that is generally considered safe for use in the oral cavity. Therapeutic actives include anti-calculus agents, fluoride ion sources, stannous ion sources, whitening agents, anti-microbial, anti-malodour agents, anti-sensitivity agents, anti-erosion agents, anti-caries agents, anti-plaque agents, anti-inflammatory agents, nutrients, antioxidants, anti-viral agents, analgesic and anaesthetic agents, H-2 antagonists, and mixtures thereof. The properties of these and other possible additional materials are discussed at length in the patent.

The final composition may be a gel and the patent gives details of the formation and structures of many possible gel combinations and describes a selection of humectants,

Title: Medical herb composition for inhibiting shedding of a mammal's hair and method for preparing the same

US Patent: 7,838,048

Serial Code & Application No. 12/318,677

Date of filing: January 6, 2009

Assignee: Brion Research Institute of Taiwan

Claimed is a medical herb composition for reducing shedding of mammal hair that comprises: a first herb material selected from the group consisting of Ginseng Radix, Astragali radix, Batatatis rhizoma, Zizyphi fructus, Tremella, Codonopsis pilosula, or a combination thereof; a second herb material selected from the group consisting of Angelicae radix, Rehmanniae preparata radix, Longanae arillus, Lycii fructus, Paeonia lactiflora, or a combination thereof; and a third herb material selected from the group consisting of Rehmanniae radix, Ligustrum lucidum, Eclipta prostrata, Dendrobium hancockii, Polygonum multiflorun, or acombination thereof.

The composition is claimed to reduce shedding of mammal hair, promote the growth of hair, and to improve vitality, skin condition, and complexion and the preferred materials are Astragali radix; Angelicae radix and a combination of Rehmanniae radix, Ligustrum lucidum, and Eclipta prostrate. The herb materials are obtained by spray drying, freeze drying or extracted using alcohol or water.

In the preamble the patent states that according to traditional Chinese herb material science theory, it is considered that: the human kidney is the root of innate endowment, and the essence is hair. Therefore the growth and shedding process of human hair reflects the exuberance and debilitation of the essential qi in the kidney. Alopecia may be a signal of kidney deficiency and blood deficiency occurring inside the body.

The herbal composition described is for a preparation to be taken orally and various excipients and accompanying materials are mentioned but it could be of interest as a topical composition based solely on natural materials.

The causes of male pattern baldness, more properly called androgenic alopecia, are almost certainly related to genetics and hormonal effects. One theory is that the 5-α -reductase enzyme converts testosterone to dihydrotestosterone, which attacks the dermal papilla leading to progressively shorter, finer hair and finally no further growth. Various patents have been filed that discuss cosmetic ways of improving hair growth; following are two based on anti-androgenic activity and a third that aims to increase the supply of nutrients to the follicle.

Title: Composition and skin treatment method therewith for mitigating acne and male-pattern baldness

US Patent: 5,116,605

Appl. No. 07/803,178

Date Granted: May 26, 1992

Inventor: John P., Fl.

Claimed is a topical application composition for mitigating male pattern baldness and testosterone-induced acne.

According to the applicants it is accepted that the varying rates of formation and high accumulations of dihydrotestosterone (DHT) in the skin give rise to the pathogenesis of acne and other androgen-related conditions, particularly male-pattern baldness. Although the absence of localised accumulation of androgens is believed fundamentally necessary to counter acne and expression of baldness in males, other factors are also important. There are different methods by which such biochemical activities are controlled and these regulatory mechanisms function as feedback control systems that continually monitor a cell's biochemistry and make corrections as needed. However, on occasion, substances from without also control intracellular biochemical reactions, by inhibiting or activating one or more of the intracellular control systems.

One such controlling extrinsic factor is the topical application of ionisable salts to disassociate the testosterone or DHT. Such ionisable salts affect changes in the hormones or protein-associated hormone, interrupting the hormone-protein linkages as well as breaking the complex structures to inactivate the active androgenic components of these molecules. Removal or inactivation of the active androgenic elements removes the toxic effects of the

The titles of patents are increasingly obscure about the purpose of those patents. The first two selected this month are for compositions to apply to the lips whilst the third is for a non-irritating sunscreen to be used in the area of the eyes.

Title: Preparation, in particular cosmetic preparation, and the production and use thereof

Patent USP 7,713,536

Serial Code & Appl. No. 11/189,255

Date of filing: July 26, 2005

Assignee: Schwan-STABILO Cosmetics GmbH

The patent suggests that conventional makeup items and lipsticks have the disadvantage that they can be easily transferred from the skin or the lips to other surfaces such as cups, glasses, and textiles. The patent claims to overcome these disadvantages by providing a composition in the form of a water-in-silicone emulsion that contains a wax, a suitable emulsifier, a volatile silicone oil, a moistening agent, a solid phase and water. In addition it may also contain the additives and adjuvant substances which are approved and usual in cosmetics. The preparation is suitable for decorative cosmetics such as lipstick, lip rouge, blusher, makeup, eyeshadow and foundation and may contain skin care or sun protection agents.

The wax has a dropping point between 70°C and 120°C and of the many mentioned pentaerythrityl tetrabehenate is preferred and represents up to 6% of the total composition. Various volatile silicone oils are thought suitable including pentacyclosiloxane and hexamethylsiloxane and are present at about 25%. Suitable emulsifiers include sorbitan sesquioleate, polyglyceryl-2-PEG-4 isostearate and cetyl PEG/PPG-10/1 dimethicone and these are generally present between about 3% and 6%.

The moistening agent is any humectant such as glycerin and various glycols that are usually found in cosmetic preparations at 3 – 5% and the solid phase comprises cosmetically approved pigments. Water is generally present at about 40% and it will also contain preservatives and water-soluble actives if desired. A colourless version is suggested as a covering for conventional lipstick after application to make it colourfast.

Title: Therapeutic and cosmetic balsam

USP Application: 20090081321

Serial Code & No **12/158488**

Date of filing: **January 18, 2006**

Assignee: **Otkrytoe Aktosionernoe, Moscow**

Claimed is a warming balsam comprising a homogenous system of oils, emollients and extracts that has a pronounced and prolonged warming, anaesthetic, anti-inflammatory and regeneration action and which also has pleasant organoleptic properties and texture.

The preferred oils and extracts are macadamia ternifolia seed oil, present at between 27% and 33%, Boswellia serrata (Olibanum) extract at 15 – 25%; isopropyl myristate at 8 – 12%; vegetable oil at 32 – 41%; oily extract of red hot pepper standardised for capsaicin (10%) at 1.5 - 2.5%, polyethylsiloxane at 0.5 – 1%; lecithin at 0.05 – 0.15% and a flavouring agent at about 0.1 – 0.2%.

Boswellia serrata grows in the mountainous regions of India and is used as an anti-inflammatory agent for treating arthritis, osteoarthritis and inflammatory lung and bowel diseases in the traditional Indian medicine "Ajurveda". The main active agents of this resin are boswellic acids.

Pepper is a well-known plant used in Ajurvedic medicine and modern medical studies confirm its immunostimulatory, phagocytic and anti-oxidant properties. The oily extract of the fruit contains piperine, piperolongumin, silvatin, piperolonguminin, philphiline, sitosterol, methyl piperate and a number of piperine-like compounds as well as a complex of vitamins: folic and pantothenic acid, and the vitamins A, B1, B2, B3, B6 and C. The extract of red pepper has a warming effect on the skin; it widens the blood vessels and activates local microcirculation. Collectively, these reactions initiate the process of fat splitting and support acceleration of subcutaneous fat metabolism.

Macadamia nut oil is rich in monounsaturated palmitic acid that is not present in any other vegetable oil. The mix also contains sunflower or corn oil and they provide antioxidant protection as they contain natural polyunsaturated fatty acids and the vital lipid soluble vitamins A and E. Isopropyl myristate and polyethylsiloxane stabilises the complex and ensures a homogenous structure.

Title: **Therapeutic herb cosmetic composition**

USP Application: **20090068292**

Serial Code & No **11/ 900604**

Date of filing: **September 12, 2007**

Correspondence: **Lixian Jiang, Fl, USA**

Described is a herbal composition to treat burns, sunburn, physical injury and dermatitis and to promote skin cell proliferation, increase collagen synthesis, increase epidermal thickness, and increase desquamation of normal skin resulting in smoother, younger looking skin.

It comprises extracts of Polygonum cuspidatum, Phellodendron amurense, Forsythia suspensa and Dryobalanops camphora and an alpha-hydroxy acid. There are many claims for Polygonum cuspidatum in Chinese and Japanese medicine and it has an antioxidant effect. It is also claimed to enhance cell proliferation and to stimulate differentiation of keratinocytes in the epidermal layer.

Phellodendron amourense is one of the top 100 herbs in traditional Chinese medicine. Amongst the many claims made for it is the capability to whiten skin and it has antibacterial properties. Dryobalanops camphora is a tree from in Asian countries, also known as Borneo camphor. It is used to treat dermatitis and is a strong antioxidant but is itself readily oxidised.

Forsythia suspense is another traditional medicinal herb and it has been demonstrated to have strong anti-bacterial, antivirus and anti-inflammatory effect. When it is topically applied to skin Forsythia suspense can treat dermatological disorders such as psoriasis. It appears that its content of polycyclic triterpene carboxylic acid can be used to treat or prevent normal, but undesirable, skin conditions such as wrinkling, sagging, photo damaged skin, dry skin and age spots and for soothing sensitive skin.

The final composition also includes an alpha hydroxy acid; it may be a cream, lotion or gel and should have a pH of less than 7.

Title: Lip plumping cosmetic composition

USP Application: 20080159974

Serial Code & No 11/595231

Date of filing: November 10, 2006

Correspondenc: Ward & Olivo, NY, USA1

Claimed is a cosmetic composition that is particularly intended for application to areas constituting or surrounding the lips. The cosmetic composition contains a viscosity increasing agent as its base, marine collagen, red dye, and a cooling agent and is specifically designed to temporarily enhance the fullness of the lips.

The patent describes various existing compositions for plumping lips including products that use microencapsulated marine collagen as their plumping ingredient. These microcapsules are directly absorbed into the surface of the lip upon application, providing a temporary infusion of collagen into the lips. Collagen, which is an integral component of skin, provides support for it and ensures that the skin remains pliable and smooth. Over time, the skin's natural content of collagen breaks down forming wrinkles and other indented areas. When collagen is infused into the skin, it fills the indented areas and reinforces the basic structure of the skin, which reduces the appearance of wrinkles and provides fuller lips.

In the composition described by the patent the viscosity increasing agent is at least one selected from the group consisting of polybutene, alkyl galactomannan, silica, talc, magnesium silicate, sorbitol, colloidal silicone dioxide, magnesium aluminium silicate, zinc stearate, wool wax alcohol, sorbitan sesquioleate, cetyl hydroxy ethyl cellulose, sorbitan isostearate, and mixtures thereof. Of these polybutene appears to be most preferred.

The preferred marine collagen is microencapsulated atelocollagen and the cooling agent is menthoxypropanediol and the composition may contain other ingredients designed to soften, moisturise, and smooth the lips in order to minimise the appearance of unsightly lines, as well as prevent additional lines from forming. A typical composition with % by weight is given as 47.124% polybutene; 22.15% mineral oil;18.18% silica silylate; 5.79% pentaerythrityl tetraisostearate; 4.554% triisostearyl citrate; 1.00% flavour; 0.20% menthoxypropanediol; 0.15% silica dimethyl silyate; 0.038% sodium chondroitin sulfate;0.022% atelocollagen; 0.06% castor seed oil; 0.04% sodium saccharin; preservatives and 01% Red 27 dye.

Resveratrol in cosmetic compositions

Resveratrol, also referred to as 3,5,4'-trihydroxystilbene, is a polyhydroxy-substituted compound present in red grapes, raspberries, blueberries, and certain other plant berries or extracts. It has been reported that resveratrol has anti-aging, anti-cancer, and antiviral effects and it has been incorporated into a variety of cosmetic compositions. However resveratrol is generally unstable in cosmetic formulations and it can hydrolyse and cause discolouration of the product.

The instability of resveratrol is due to its phenol groups and it has been discovered that resveratrol derivatives of inorganic acids, organic carboxylic acids, mono-, di-, or polysaccharides, or other functional groups are more stable in cosmetic formulations. Salts can be formed by adding corresponding bases, such as sodium hydroxide or potassium hydroxide into a solution containing the resveratrol esters.

Once the compositions containing the derivative are applied to skin the protective groups can be easily hydrolysed from the molecule by enzymes and other ingredients on the skin surface, to release an active form of resveratrol into the skin.

One organisation has filed a number of patents describing the use of resveratrol in anhydrous compositions, in emulsions and in aqueous compositions and three of these patents are shown here.

Title: Aqueous-based cosmetic compositions containing resveratrol derivatives and an aqueous-phase structuring agent

USP Application: **0090035240**

Serial Code & No **12/ 127399**

Date of filing: **May 27, 2008**

Correspondence: **Julie Blackburn; Melville, NY 11747 US**

Claimed is an aqueous based cosmetic composition comprising at least one resveratrol derivative and a water phase containing at least one aqueous-phase structuring agent; or an emulsion composition comprising at least one water phase, at least one oil phase containing at least one non-volatile silicone, and at least one resveratrol derivative.

The non-volatile silicone is selected from the group comprising phenyl trimethicone, phenyl dimethicone, diphenyl dimethicone, dimethicone or cetyl dimethicone. In a preferred embodiment the aqueous phase contains an acrylate polymer as a structuring agent and the non-volatile silicone is dimethicone or phenyl trimethicone and the composition further contains a silicone surfactant.

Suitable silicone surfactants include polyorganosiloxane polymers that have amphiphilic properties, for example contain hydrophilic radicals and lipophilic radicals, and are generally referred to as dimethicone copolyol or alkyl dimethicone copolyol. One preferred cross-linked silicone elastomer emulsifier is dimethicone/PEG-10/15 crosspolymer.

The preferred resveratrol derivative is sodium resveratrol triphosphate and the final compositions may also contain botanical extracts, sunscreens and other functional materials as well ingredients to improve their aesthetic properties, protect them from microbial spoilage and extend their shelf life.

Example formulations include trisodium resveratrol triphosphate at 0.5% in an o/w skin treatment emulsion and 0.5% resveratrol tripalmitate in an oil-in-water-in-silicone emulsion. A water-in-silicone skin serum includes 0.5% trisodium resveratrol triphosphate and resveratrol tripalmitate at 0.5% is shown in examples of liquid foundation makeup.

Title: Emulsion cosmetic compositions containing resveratrol derivatives and linear or branched silicone

USP Application: 20090035242

Serial Code & No 12/ 127439

Date of filing: May 27, 2008

Correspondence: Julie Blackburn; Melville, NY 11747 US

Claimed is a cosmetic emulsion composition comprising at least one resveratrol derivative, a water phase and an oil phase containing at least one linear or branched volatile silicone and a method for delivering active resveratrol to the skin.

This differs from patent 20090035240 whereby the compositions contains volatile silicone compounds and in other minor details. The linear volatile silicone is selected from the group comprising hexamethyldisiloxane, octamethyltrisiloxane, decamethyltetrasiloxane, dodecamethylpentasiloxane, or mixtures thereof and the preferred branch-chain volatile silicone is methyl trimethicone.

The aqueous phase contains at least one humectant and a structuring agent selected from the group consisting of a polysaccharide, an acrylate polymer, and a high molecular weight PEG, or a high molecular weight polyglycerin or an acrylate polymer.

The preferred composition is an oil-in-water skin cream or lotion comprising octamethyltrisiloxane, non-volatile dimethicone, dimethicone copolyol or cetyl dimethicone copolyol, and at least one oil phase structuring agent. The final composition may also contain botanical extracts, sunscreens and other functional materials as well ingredients to improve its aesthetic properties, protect it from microbial spoilage and extend its shelf life.

Example formulations are similar in outline to those disclosed in patent 20090035240 and include trisodium resveratrol triphosphate at 0.5% in an o/w skin treatment emulsion and 0.5% resveratrol tripalmitate in an oil-in-water-in-silicone emulsion. A water-in-silicone skin serum includes 0.5% trisodium resveratrol triphosphate and resveratrol tripalmitate at 0.5% is in liquid foundation makeup.

Title: anhydrous cosmetic compositions containing resveratrol derivatives

USP Application: 20090035243

Serial Code & No 12/ 127455

Date of filing: May 27, 2008

Correspondence: Julie Blackburn; Melville, NY 11747 US

This differs from patents 20090035240 and 20090035242 as it describes anhydrous colour cosmetic compositions comprising at least one resveratrol derivative in anhydrous emulsion skin care compositions. The

compositions of the invention may be in the liquid, solid, or semi-solid form or as anhydrous emulsions. Anhydrous emulsions are formed when the resveratrol derivative is solubilised or dispersed in a polar non-aqueous solvent such as ethanol, propylene glycol or butylene glycol. The compositions may be in the form of lipsticks, blush, eye shadow, mascara, eyeliner, lip liner, and nail colour and skin treatment serums or gels.

Preferably, resveratrol derivatives used in the compositions of the invention are solubilised or dispersed in a liquid phase. When the composition is in the form of an anhydrous emulsion the resveratrol derivative may be solubilised or dispersed in a liquid phase that comprises at least one non-aqueous polar solvent. Suitable non-aqueous polar solvents may include humectants such as glycols and polyhydric alcohols.

If the product is an anhydrous composition the resveratrol derivative is dispersed in oil. Suitable oils include silicones, cyclomethicones, esters, vegetable oils, synthetic oils and hydrocarbons.

A variety of formulations are shown for makeup products and serums by way of illustrating the scope of the patent. The resveratrol derivatives used are trisodium resveratrol phosphate at 0.5% in a skin treatment serum; resveratrol palmitate at 0.5% in an anhydrous foundation product and resveratrol triisostearate at 1% in a lipstick composition.

Products to protect the skin from the damaging effects of UV radiation are of increasing cosmetic interest. Described are three quite different patents, two of which mitigate unwanted areas of pigmentation and one that comprises a three stage process to permit a tan without associated skin damage.

Title: Cosmetic composition comprising a combination of a sugar fatty acid ester with a plant extract of *Waltheria indica* or *Pisum sativum* for skin whitening

USP Application: USP 20090110651

Serial Code & No 12/294203

Date of filing: September 23, 2008

Assignee: Cognis GmbH

According to the applicants there is a global market demand for whitening agents in cosmetics to prevent or decrease abnormal pigmentations, such as freckles or spots that are due to over exposure to sun. Claimed is a skin-whitening active comprising at least one sugar fatty acid ester and at least one plant extract selected from the group consisting of extracts of *Waltheria indica* and of *Pisum sativum* and mixtures thereof.

Skin whitening agents generally act by inhibiting tyrosinase activity. It was found, that although extracts of *Waltheria indica* or extracts of *Pisum sativum* alone do not display tyrosinase inhibitory activity, they increase the tyrosinase inhibiting activity of sugar fatty acid esters. The preferred extracts are aqueous or aqueous/ethanol extracts obtained at the boiling point of the solvent and preferably in an inert atmosphere to reduce the risk of oxidation. After the extraction process, the crude extracts obtained may be purified, concentrated and decolourised.

Sugar esters are non-ionic surfactants which may be obtained by the reaction of fatty acid methyl esters with corresponding sugars or by enzymatic processes. In a preferred embodiment of the invention sugar fatty acid esters are used wherein the sugar component is selected from glucose, fructose, sucrose, or trehalose and the acyl component is selected from capric acid, lauric acid or myristic acid. Preferably these sugar esters have an average degree of esterification of 1 to 4 and a typical example is sucrose laurate

The skin-whitening active is used in cosmetic compositions as an inhibitor of melanogenisis and as an agent to decrease tyrosinase activity and to decrease melanosome maturation in melanocytes. The actives may be presented in any conventional cosmetic form and composition suitable for application to human skin and the patent suggests various ratios that achieve the claimed whitening effect.

Title: Use of a griffonia extract, in particular *Griffonia simplicifolia*, in a cosmetic or dermatological composition for mitigating pigmentation of skin and skin appendages

USP Application: USP 20090047310

Serial Code & No 11/ 921943

Date of filing: March 10, 2008

Inventor: Meybeck; Alain (France)

The composition described is a cosmetic or dermatological preparation that may contain at least one active de-pigmenting ingredient; at least one substance for filtering or blocking ultraviolet radiation; at least one anti-inflammatory material; at least one agent for encouraging skin flaking and from 0.5% to 5% by weight of an extract of *Griffonia simplicifolia*.

Griffonia simplicifolia is a tree growing mainly in West Africa, and more particularly in Ghana, Ivory Coast and Togo. The seeds of *Griffonia simplicifolia* are currently the only source for the industrial production of 5-hydroxytryptophan (5-HTP), which is used in pharmacy and as a food additive. It is preferably added as a powder.

In the composition described by the patent it is used in combination with a de-pigmenting agent selected from a list comprising arbutin, kojic acid, azelaic acid, octadecenedioic acid, extract of Morus alba, extract of Glycyrrhiza glabra, ascorbic acid and its derivatives such as ascorbyl glucoside, ascorbyl phosphate and the double phosphate of vitamin C and vitamin E.

It also contains at least one anti-inflammatory agent such as extract of Glycyrrhiza glabra, glycyrrhetinic acid, extract of Scutellaria baicalensis, extract of Aloe vera or bisabolol. The preferred exfoliating agent is salicylic acid, an alpha-hydroxy acid or urea. The preparation also contains suitable sunscreens to reduce the effects of UV radiation on the skin.

Suitable preparations are described as aqueous or hydro-alcohol lotions, aqueous or hydro-alcohol gels, micro-emulsions, creams and powders or the *Griffonia simplicifolia* powder may advantageously be administered in the form of a capsule or tablet preferably containing from 25 to 75 mg of 5-hydroxytryptophan.

Title: Cosmetic process for the treatment of the skin with sun-protection products and sun-protection products in combination

USP Application: **USP 20090117060**

Serial Code & No **11/568092**

Date of filing: **April 14, 2005**

Assignee: **Coty B.V.**

Prior to intensive exposure of the skin to UV radiation the patent suggests that a pre-sun product could be beneficially applied followed by a sunscreen product and that after exposure the repeated application of an after-sun composition would also be to advantage. The stated objective of the applicants is to provide a novel sun product combination which achieves an improved sun protection effect, an improved tan and, at the same time, has a skin care effect.

The pre-sun product comprises a radical interceptor, a caffeine/complex amino acid salt, an enzyme and an extract of *Corallina officinalis*. The sun product includes a UV filter combination of UVA and UVB filters having at least 3% by weight of UVA filter. The after-sun product contains components similar to those used for the pre-sun product with the algae extract being replaced by a cooling plant extract; preferred is water melon extract.

Of various radical scavengers that preferred is an extract of the bark of *Quebracho blanco* treated by enzymatic hydrolysis so that it contains at least 90% by weight proanthocyanidine oligomers and no more than 10% by weight gallic acid, added in microcapsule form in combination with a silkworm extract in liposome form containing the peptide cecropine, various amino acids and a mixture of vitamins.

The combination of caffeine/complex amino acid salts increases microcirculation and enhances the suntan. The complex amino acid salt consists of sorbitol, arginine-HCl, ornithine-HCl, tyrosine and silica. The *Corallina officinalis* extract enhances the radical scavenging effect due to enzymatic catalytic activity and a variety of trace elements, such as iron, copper, iodine, cobalt and manganese also have an effect.

The sun product contains UVB and UVA filters in order to protect the skin from UV damage and in particular from damage attributed to UVA radiation. Various combinations of filters may be used provided the overall combination is photostable and several formulae with various SPF illustrate the patent and there are also examples of the pre-sun and after-sun compositions. In addition various test protocols to determine the efficacy of the three products in protecting the skin against UV damage, increasing skin moisture content and enhancing skin tan are described.

Tooth decay and gum inflammation are related to the activity of microbial plaque, which consists of bacterial products, leukocytes, epithelial cells and saliva components. In the presence of saliva, proliferating bacteria attach to places with retained food such as gum line, tongue, tooth spacing, pits and fissures. The bacteria decompose food, releasing toxic substances and forming plaque and tartar, which results in bad breath, gum inflammation and dental caries. The following patent abstracts describe three different approaches to improving the hygiene of the oral cavity; one uses an enzyme with xylitol in toothpaste; the second is an anhydrous product that releases active oxygen when chewed and the third is a mouthwash with essential oils.

Title: **Oral cavity care curative and prophylactic composition**

USP Application: **20090016972**

Serial Code & No **12/094605**

Date of filing: **November 25, 2005**

Correspondence: **Mikhail Utkin, NV**

Claimed is a preparation of medical and prophylactic tooth-pastes, gels and liquids containing orally applicable active and inert components for oral care. The compositions have a bromelain content of between 0.01 to1% and contain from 1.5% to 20% xylitol The composition also contains an anti-caries mineral additive such as calcium glycerophosphate; sodium monofluorophosphate; potassium monofluorophosphate; calcium monofluorophosphate or magnesium monofluorophosphate in amount to a maximum of 3%.

In practice a biofilm forms on dental surfaces that impedes mineral penetration into teeth enamel. The stated aim of the applicants is to provide high-efficiency formulations for prophylaxis of stomatological diseases of teeth and the soft tissues of the oral cavity. This is attained by the use of the enzyme bromelain, which ensures the effective removal of bacterial deposits and possesses anti-inflammatory and an immuno-corrective action associated with both the direct proteolytic action of the enzyme and the regulatory effect of its peptide fragments. Due to the presence of protease inhibitors it is safe for viable tissues.

The main function of the xylitol is modulation of dental enamel permeability and its involvement in the biochemical metabolism of streptococci resulting in reduced activity of pathogenic microorganisms and improved conditions of oral cavity organs that contributes to dental remineralisation. It improves deposition of calcium in dental enamel, inhibits dental plaque formation and reduces the caries forming potential of microflora. Being a sweetener, xylitol improves the taste properties of the composition and being a polyatomic alcohol, it acts as a water-retaining component. The combination of bromelain, xylitol and a fluorophosphate may be used in toothpastes, gels and other compositions formulated for dental care.

Title: Improving the mouth environment with an oral composition

USP Application: **20090155188**

Serial Code & No **12/ 248295**

Date of filing: **October 9, 2008**

Correspondence: **James Sonntag, UT**

Described is a solid oral composition for providing a mouthwash efficacious effect comprising a non-hygroscopic base, carbamide peroxide, a bacterial immobilising and sulphur sequestration agent and an optional antioxidant enzyme.

The composition is claimed to improve the mouth environment by raising the pH and reducing bacterial growth and gingivitis and is useful in the prevention and reduction of bad breath, plaque and related gum diseases. The composition is effective in killing or altering bacterial metabolism and suppressing the growth of microorganisms which cause diseases of the oral cavity, such as plaque, gingivitis, periodontal disease, and breath malodour. The composition also contains an antioxidant to inhibit cellular changes in the user that may otherwise occur due to the oxidants in the composition.

The non-hygroscopic base comprises a hydrogenation product of isomaltulose or mannitol or a mixture of these. The antibacterial agent and sulphur sequestration agent comprises a mixture of biguanide, a quaternary ammonium antibacterial compound, a water-soluble zinc, copper, silver or stannous salt and the preferred antioxidant enzyme is Coenzyme Q.

The composition is provided in the form of a solid chewable tablet, which dissolves in saliva while being chewed or held in the mouth. The carbamide peroxide is at a maximum 3%, which is insufficient to provide an effective or satisfactory tooth-whitening effect, but sufficient to provide an efficacious amount for bacterial immobilisation.

Title: Disinfectant compositions and methods of use thereof

USP Application: 20090061019

Serial Code & No 12/ 206023

Date of filing: September 8, 2008

Assignee: Knockout Technologies, Ltd, NY

Claimed is a highly potent, non-toxic, disinfectant comprising hydrogen peroxide, orange terpene oil, orange valencia oil, a non-ionic emulsifier and water, which is suitable for use as a mouthwash and skin cleanser.

In the preamble hydrogen peroxide is described as a strong, environmentally friendly, disinfectant with a broad spectrum of antimicrobial activity but in high concentrations it can damage tissue making it more vulnerable to pathogenic penetration. Essential oils, are described as natural products known to have antimicrobial properties however, their potency and spectrum of action is generally less than that of other antimicrobials and formulations are difficult to make because the oils are not readily miscible in water.

The non-miscibility f the orange oils is overcome by the inclusion of polysorbate-80 and an example composition comprises 5.25% hydrogen peroxide, 10% v/v orange terpene oil, 5% v/v orange valencia oil, 10% v/v polysorbate 80 and the balance is water. Variations include the addition of rosemary oil as an antioxidant and of antimicrobials such as quaternary ammonium compounds, triclosan, cetyl pyridinium chloride, domiphen bromide, zinc compounds, sanguinanine soluble pyrophosphates, fluorides, alexidine, octonidine, and EDTA. Preparations may also include surfactants, common builders that improve surfactant effectiveness, saponifiers, chelating agents, and other solvents. Ingredients to improve the taste, aesthetics and stability of the composition may also be added.

It is claimed that the components of the composition work synergistically against microorganisms and it is believed that the orange valencia oil together with the other components weakens the microorganisms making them more vulnerable to hydrogen peroxide.

Skin peels are an essential part of beauty salon treatments and they are also available for home use. The following three patents show different approaches to providing such compositions.

Title: Skin peeling composition and method

USP Application: 20080146529

Serial Code & No **12/010897**

Date of filing: **January 31, 2008**

Assignee: **L'Oreal S.A.**

Claimed are methods of peeling skin using salicylic acid derivatives in a dermatologically acceptable carrier and methods of applying this composition to skin to be peeled. A preferred salicylic cid derivative is 5-n-octanoyl-salicylic acid, also known as capryloyl salicylic acid, and salicylic acid or glycolic may also comprise part of the composition.

The salicylic acid and its derivatives may amount to between 25% and 30% of the total composition by weight. The derivative has to be dissolved in a solvent such as aqueous ethanol. Example formulations show up to 30% capryloyl salicylic acid alone or in combination with salicylic acid or glycolic acid dissolved in ethanol. The composition may contain up to 5% water plus propylene glycol and other materials to improve the aesthetics and stability of the composition.

The composition is applied to the face using a spray bottle, an absorbent cotton swab wetted with the concentrated solution, with a solution-wetted sable brush or by gentle wiping with a gauze square or nonwoven pad impregnated with the solution. The application serves as a peel, the degree of which depends upon the amount or concentration of acid compound and the time it is left on the skin before removal. By using a volatile solvent the degree of peeling is self-limiting as when the solvent evaporates the desquamating activity ceases. The residues are then removed with damp tissue or rinsed away with water.

The patent suggests a bland or mild moisturiser may be applied, as desired, to the treated skin to reduce the visibility of scaling or peeling skin and to reduce skin dryness. The skin treated in the method of this invention may be treated further, with conventional skin treatment therapies.

Title: **Kit for caring for the skin intended to soften cutaneous signs of ageing**

USP Application: **20090004280**

Serial Code & No **12/ 208484**

Date of filing: **September 11, 2008**

Assignee: **L'Oreal, France**

Described is a kit for skin care intended to soften cutaneous signs of ageing, which contains in separate packaging, a microdermabrasion composition, a peeling composition, a soothing composition and an anti-ageing composition.

The dermabrasion composition is an oil-in-water (o/w) emulsion containing at least 5% but preferably 20% by weight of particles of magnesium oxide or aluminium oxide with a mean particle size ranging from 100 to 180 mμ. This is mixed with at least one heterogeneous polysaccharide and it has a pH of between 6.6 and 7.0. Suitable polysaccharides are alginates or a heterogeneous polysaccharide such as Biosaccharide gum-1, which is thought to mitigate discomfort during the dermabrasion process.

The dermabrasion process may involve spraying the composition over the skin using a device which subsequently sucks it up with the abraded skin or it can be applied to the skin by manual massaging with the fingertips or by mechanical massaging using a vibrating massaging head equipped with a pad

The peeling agent is an alpha-hydroxy acid (AHA), preferably glycolic acid, in the form of an aqueous gel impregnated on a wipe and it has pH of between 3.5 and 4.5. Other packaging forms are possible but single-dose compositions avoid the application of an excessive amount of desquamating agent capable of producing undesirable effects. Wipes make it possible to observe a minimum leave-on time, which will depend on the nature and on the concentration of the desquamating agent, ensuring that the desired result is obtained.

The peeling process occurs at a very acidic pH so a mineral water is then used to wipe away the residues remaining after the dermabrasion and peeling process. It is suggested that by using water with a high mineral content it is possible to compensate for the irritating effect of the metal oxide particles and of the desquamating agents previously employed. Mineral waters with a total concentration of carbonates and bicarbonates of preferably at least 360 mg/l are required. The concentration of silicon oxide in the water is preferably at least 9 mg/l. Such mineral waters occur naturally in France with those from the Vichy basin being preferred and ideally this is sprayed on the treated area of skin.

The fourth stage of the process involves application to the skin of an anti-ageing composition comprising at least one anti-ageing active principle chosen from compounds which enhance the synthesis of collagen. All currently known materials that may have this property are named in the patent but among those compounds preference is very particularly given to ascorbic acid and its derivatives, such as ascorbyl glucoside and adenosine and their mixtures.

The anti-ageing composition is preferably an o/w emulsion and the oils present can be volatile or non-volatile silicone oils, hydrocarbon oils or vegetable oils. It can additionally contain non-oily fatty substances, such as shea butter, silicone gums, fatty alcohols and fatty acids and esters thereof. The anti-ageing emulsion advantageously contains at least one moisturising agent, such as glycerol, at least one antioxidant or agent for combating free radicals, such as tocopherol, tocopherol acetate, ascorbic acid or arginine pyrrolidone carboxylate and at least one photo-protective agent which is active in the UV-A and UV-B region of solar radiation.

An illustrative formula for the dermabrasion formulation is given as follows:

PEG-100 stearate 0.75%

Glyceryl stearate 0.75%

Stearyl alcohol 1.50%

Mineral oil 10%

Apricot kernel oil 2.0%

Polydimethylsiloxane 1.0%

Polysaccharide 1.0%

Polyacrylamide 0.30%

Butylene glycol 3.0%

Propylene glycol 3.0%

Aluminium oxide 15.0%

Preservatives q.s.

Biosaccharide gum-1 qs

Demineralised water to 100%

Title: Skin cosmetics comprising a cystine derivative and a chemical peeling agent, a bactericide, an anionic surfactant, or a cationic surfactant

USP Application: 20080119551

Serial Code & No 12/ 016376

Date of filing: January 18, 2008

Assignee: Ajinomoto Co. Inc

Claimed is a skin peeling composition comprising an AHA as the chemical peeling agent plus a bactericide, an anionic surfactant or a cationic surfactant component in combination with a cystine derivative. The cystine derivative is an N,N'-diacylcystine dialkyl ester

The preferred AHA is either glycolic or lactic acid; the preferred bactericide is benzalkonium chloride and the preferred cationic surfactant is stearyl trimethyl ammonium chloride. The preferred anionic surfactant is sodium lauryl sulphate.

It is claimed that the cystine derivative mitigates the inflammation and irritation caused by the peeling process. The patent is very detailed in its claims; this brief extract is to bring the use of a cystine derivative as an anti-irritation additive to the attention of readers. Skin irritation studies wee undertaken using 30% glycolic acid solution and 5% N,N'-dioctanoyl-L-cystine dimethyl ester was shown to significantly diminish the irritation caused by this material.

With only a limited number of preservatives from which to choose and this list further reduced by incompatibilities and consumer perceptions, effective cosmetic preservation is one of the most difficult aspects of formulation, The following patents look at various ways to achieve a well-preserved product by using synergistic effects between ingredients that are not generally sufficiently effective by themselves. The last example is very specific to solutions containing amino acids.

Title: Antimicrobial compositions

USP Application: 20090191289

Serial Code & No 12/ 402451

Date of filing: March 11, 2009

Assignee: Lonza Inc.

Claimed is an antimicrobial composition comprising a mixture of at least two components selected from an extensive list of named essential oils, plant extracts and organic acids. In the background to the patent it is claimed that natural products, while often safe, are generally expensive and do not have biocidal efficacy against a broad spectrum of organisms such as gram negative and gram positive bacteria and fungi. Most natural products are only effective against gram positive bacteria at relatively high concentrations and are not effective against gram negative bacteria or fungi.

There are many embodiments to this patent, which require careful study. Central to a number of mixtures is the use of cinnamaldehyde but when used for cosmetic preservation the presence of cinnamon oil must be below its

odour threshold. One synergistic mixture described comprises cinnamaldehyde and at least one conventional personal care preservative, such as an isothiazolinone, a benzisothiazolinone or a formaldehyde donor like hydantoin.

Also claimed is a method for potentiating the efficacy of antimicrobial compositions containing sorbic acid, benzoic acid, or salts thereof, by adding erythrobic acid or a salt thereof, or delta.-gluconolactone in the composition.

Numerous examples with approximate levels of concentration are listed including one of cinnamaldehyde, potassium sorbate, ethanol, and water. Another is sodium benzoate sodium sorbate and sodium citrate with delta.-gluconolactone, and sodium EDTA. In each case the results of antimicrobial challenge tests against standard organisms are shown.

Title: Isothiazolinone-containing preservative with improved effectiveness

USP Application: 20090012135

Serial Code & No 11/ 885451

Date of filing: March 2, 2006

Assignee: Air Liquide Sante (Fr)

Described is a method to improve the effectiveness of isothiazolinones as preservatives by the addition of one or more glycerol monoalkyl ethers to the preservative mixture. The preferred isothiazolinone is methylisothiazolinone present at about 8% and the preferred alkyl ether is ethylhexylglycerin, which makes up the balance of the preservative system.

A description of different mixtures of methylisothiazolinone with ethylhexylglycerin and the results of various challenge tests are shown and a synergy between the two materials is claimed.

Title: Broad Spectrum Non-Traditional Preservative System

USP Application: 20080311231

Serial Code & No 12/ 136530

Date of filing: June 10, 2008

Correspondence: Baker Botts, NY

Claimed are preservative compositions containing emollient solvents such as octanediol or octoxyglycerine monoesters in combination with organic acids such as alpha hydroxy acids, which may be used for preventing microbial growth and spoilage in cosmetic and topical skin formulations with the added benefit of providing a silky smooth texture to skin. The compositions may optionally contain an essential oil component. The preservative compositions are odourless and colourless and small concentrations can be added to cosmetic formulations to prevent bacterial, yeast and fungal growth.

The emollient solvent is selected from the group comprising octanediol, hexanediol, caprylyl glycol, ethylhexylglycerin, propylene heptanoate, propylene caprylate and glyceryl caprylate. The alpha hydroxy organic acid is selected from the group consisting of citric, lactic, benzoic, glycolic, mandelic, malic and tartaric

acids. The essential oil component is selected from the group consisting of thyme oil, Satureia hortensis oil, oregano oil, rosewood oil, lavender oil, basil oil, farnesol, and bisabolol.

A list of different mixtures of emollient solvents with different AHAs, with and without additional essential oils, is given and the results of various challenge tests are shown.

Title: Synergistic preservative systems and their use in cosmetic compositions

USP Application: 20080311231

Serial Code & No 11/ 672425

Date of filing: February 7, 200

Correspondence: Playtex Products, Inc.

Described is a synergistic preservative system for use in a cosmetic composition comprising one or more oil-miscible glycols and one or more preservative components that imparts enhanced anti-fungal and anti-bacterial efficacy and is free of formaldehyde donors, parabens, ethanol, and isothiazolinones.

One or more oil-miscible glycols is selected from the group consisting of pentylene glycol, neopentyl glycol, caprylyl glycol, benzyl glycol, hexanediol, ethyl hexanediol, and any combinations thereof. Of these caprylyl glycol and neopentyl glycol are preferred.

One or more preservative components are selected from the group consisting of erythrobic acid, benzoic acid, citric acid, sorbic acid, gluconic acid, glucono-1,5-lactone, lactic acid, EDTA and their sodium or potassium salts and calcium lactate and any combinations thereof.

The inorganic acid or inorganic acid derivatives are selected from the group consisting of sodium bicarbonate, potassium bicarbonate, sodium sulphite, sodium metabisulphite and any combinations thereof.

Many different combinations of two or more of these materials are described and the results of various challenge tests accompany the patent.

Title: Aqueous preservative solution with high amino acid content

USP Application: 20080260672

Serial Code & No 12/101467

Date of filing: April 11, 2008

Assignee: Ajinomoto Co.

Described are aqueous preservative solutions with a high amino acid content that when incorporated in a cosmetic, are capable of imparting a high moisturising effect without causing a sticky feeling, and that also protect dyed hair from colour fading. This is achieved by incorporating pyrrolidone carboxylic acid or a salt thereof with amino acids or their salts and lactic acid or a salt thereof at a specific ratio and at a specific pH.

Preferred amino acids are arginine, aspartic acid, glycine or alanine or their salts. The amino acids are selected for their skin moisturising properties and for preventing colour fade of hair. The applicants maintain that there is a demand for aqueous solutions of amino acids and their salts at relatively high concentration but that such solutions are prone to degradation and the development of unwanted colour and malodour and precipitation of the acid may occur.

Pyrrolidone carboxylic acid, which is an amino acid derivative, has a moisturising effect and is known to prevent colour fading of dyed hair. It acts synergistically with lactic acid to impart a preservative effect. The preferred pH of the solution is between 4.8 and 5.4 and this pH is achieved by balancing the levels of acidic components and the pyrrolidone carboxylic acid should preferably be between 37% and 45% of the total weight of the composition.

The patent is extensively illustrated with examples of different ratios of various amino acids and their preservative efficacy, moisturising properties and other attributes when incorporated with pyrrolidone carboxylic acid and lactic acid or their salts in aqueous solution.

An inspection of recently granted patents for antiperspirants reveals that most activity is towards providing improved carriers for the actives. Following are three patents that address this aspect: the first claims an improved anhydrous stick composition; the second an improved gel formulation and the third a method of stabilising active ingredients that are subject to photodegradation.

Title: Antiperspirant Composition Based on Dicarboxylic Acid Diesters of a C6-C18 Dicarboxylic Acid With C12-C22 Fatty Alcohols

USP Application: 20090214457

Serial Code & No 11/886621

Date of filing: March 20, 2006

Correspondence: Fox Rothschild Llp

Claimed is a cosmetic composition which contains at least one dicarboxylic acid diester of a C6-C13 dicarboxylic acid with a C12-22 fatty alcohol and at least one oil component. The patent is aimed at providing the base for an antiperspirant or deodorant and is readily adapted to provide a lipstick or anhydrous lip balm.

According to the applicants anhydrous stick compositions present formulation difficulties that are overcome by this patent, which provides stick compositions with the necessary hardness and a smooth surface having an attractive gloss and that are less inclined to crumble in use.

The dicarboxylic acid component is selected from C6-C18 dicarboxylic acids, of which the most important representatives include adipic acid, azelaic acid, sebacic acid, dodecanedioic acid and octadecanedioic acid. The dicarboxylic ester should have a melting point of 50° to 55°C; hydrogenated castor oil is an example. The fatty alcohol component is preferably cetyl alcohol or stearyl alcohol. The oil component may be almost any commonly used cosmetic oil including hydrocarbons, triglycerides, silicone oils and fatty acid esters. Commonly used cosmetic waxes may also form part of the composition.

The composition also contains at least one inorganic astringent salt, a deodorant material or a pigment depending on whether the composition is a stick composition for antiperspirants, deodorants or decorative cosmetics. Suitable antiperspirant materials are aluminium chloride, aluminium chlorohydrate, zirconium salts and mixtures thereof. Suitable deodorant materials are esterase inhibitors such as triethyl citrate and antimicrobial materials such as phenoxyethanol, chitosan and triclosan. Suitable pigments are any of the oxides and pigments typically used in lipsticks, eye shadow sticks and make-up sticks. The patent is extensively illustrated with example formulations and descriptions of their properties.

Title: Antiperspirant Gel Composition

USP Application: 20090117065

Serial Code & No 12/132955

Date of filing: June 4, 2008

Assignee: The Procter & Gamble Co.

Described is an antiperspirant composition including a continuous oil phase, an internal aqueous phase and a residue-masking agent. The continuous oil phase comprises a water-immiscible liquid and a tack-reducing agent and the aqueous phase comprises one or more polar solvents and an antiperspirant active.

Preferably the water-immiscible liquid comprises a dimethicone copolyol and a blend of dimethicone and trisiloxane but many others are listed. The tack-reducing agent comprises a cyclopentasiloxane, dimethicone/vinyltrimethylsiloxysilicate crosspolymer present at between 2% and 5% by weight but again, many others are listed. Of the many polar solvents listed water, an alcohol, and propylene glycol are preferred and the preferred residue masking agent is PPG-14 butyl ether.

The antiperspirant active as formulated in the compositions described are typically in the form of dispersed particulate solids having a preferred average particle size or equivalent diameter of preferably less than about 20 microns, and even more preferably less than about 10 microns. Particular antiperspirant active examples include aluminium-containing or zirconium-containing salts or materials, such as aluminium halides, aluminium chlorohydrate, aluminium hydroxyhalides, zirconyl oxyhalides, zirconyl hydroxyhalides and mixtures thereof.

The compositions may include other ingredients typically used in similar compositions to improve their aesthetic, efficacy and shelf-life properties. Following is an example formulation from the patent.

Ingredient	Weight %
Aluminum zirconium octachlorohydrex gly	41.00
Water	9.41
Ethanol	20.00
Propylene glycol	4.64
Dimethicone & trisiloxane	7.45
Dimethicone copolyol	5.00
Cyclopentasiloxane, dimethicone/vinyltrimethylsiloxysilicate crosspolymer	5.00
Perfume composition	1.50
PPG-14 butyl ether	6.00

Title: Antiperspirant or deodorant products

USP Application: 20090175815

Serial Code & No 12/ 316963

Date of filing: December 18, 2008

Assignee: Conopco, Inc. dba Unilever

Claimed is that the photo-destruction of an ingredient that is susceptible to photo-destruction in a stick cosmetic product can be retarded by pigmenting the composition. The dispenser of a particular design that prevents the ingress of air during use is also included within the patent

Described is an antiperspirant or deodorant product in the form of a solid anhydrous stick composition containing one or more ingredients that are susceptible to photo-destruction by visible UV light. Examples of such substances include palmatine or malvidin often employed as its chloride salt, and chlorophyll, coumarin, porphyrins, porphins, myoglobin, riboflavin, bilirubin, and methylene blue and xanthene based dyes. Polyphenols, vitamins, proteins and enzymes may also be affected.

Although the very extensive patent cites many other ingredients it is particularly directed at a composition comprising an antiperspirant or deodorant active, palmatine and a stabiliser for the palmatine. Palmatine is used as a hair growth inhibitor but is particularly susceptible to photo-induced degradation such that its employment in products such as antiperspirants or deodorants is counter-indicated because its effectiveness can reduce in time.

The stabiliser is desirably selected from pigments having a colour that is similar to or overlaps with the ingredient that suffers from photo-degradation. A matching pigment is described as one having a colour within 150 nm of the peak extinction coefficient of the ingredient that is susceptible to photo-degradation. Such a

preference is not for aesthetic reasons, but is advantageous for reducing the susceptibility of the material to photo-degradation. For example, a yellow ingredient can have its rate of destruction retarded by a reddish pigment at about 700-740 nm. Where the ingredient that is susceptible to photo-degradation has two such peak extinctions, then it is preferable to employ pigments that appropriately match both peaks instead of only one. The dispenser forms part of the patent and it suggests that for further protection the protective pigment can be incorporated in the dispenser itself.

The compositions described can comprise at least one additional cosmetic active ingredient, for example one or more that can impart moisturisation, combat ageing of skin, condition skin, protect skin against exposure to sunshine and ameliorate sunburn or repel insects and may include other ingredients typically used in similar compositions to improve their aesthetic, efficacy and shelf-life properties.

Title: Dental bleaching gel composition containing vegetative enzymes

USP Application: USP 20090220919

Serial Code & No 12/191628

Date of filing: August 14, 2008

Assignee: Agnew International, CA, 92618

Claimed is a teeth bleaching formulation containing vegetative enzymes extracted from plant tubers to promote the decomposition of peroxide compounds. The intermediate hydroxyl free radicals generated effectively whiten stained teeth.

The functioning mechanism for teeth bleaching is by utilisation of free radical hydroxyl peroxide released from hydrogen peroxide or carbamide peroxide, which is infiltrated into the enamel and dentine of the teeth to create an oxidation process. The free radicals will react with stains on the teeth thereby providing a teeth bleaching. The dissociation of free radical hydroxyl peroxide from the bleaching gel can be accelerated by a light source with a predetermined wavelength, or by increasing its working temperature.

The composition of the whitening gel is in two parts: the first component contains either hydrogen peroxide or carbamide peroxide and a peroxide compatible gel compound, preferably Pluronic F-127, and it has a pH between 5 and 7. The second component comprises an anti-oxidant catalase extracted from plant tubers, preferably potato, sweet potato, yam or taro, and an anti-oxidant stabiliser and the pH is within the range 7 – 11. Prior to use the two components are mixed together to activate the release of free hydroxyl radicals.

The patent describes two versions of the composition. The first is for home treatment and contains 4% to 6% of hydrogen peroxide or a concentration of 10% to15% carbamide peroxide, based on total weight of the formulation. The effect is mild and requires daily application lasting 30 to 60 minutes over a period of one to two weeks. The alternative version is for professional application and this contains from 25% to 35% hydrogen peroxide. In application, after the bleaching gel or paste is administered around the crown, a light or heat source is applied to promote and accelerate the dissociation of the hydrogen peroxide, and the pigment residual and stains deposited on the surface of teeth are effectively dissociated and removed.

Title: Gel cosmetic composition

USP Application: USP 20090186792

Serial Code & No 12/373053

Date of filing: August 24, 2007

Assignee: Kao Corporation, Japan

Described is a cleansing composition containing scrub agents for eliminating decayed corneum or removing dirt from pores. In addition, a comfortable massage feeling can also be obtained by the moderate physical stimulation attributed to the particles. The cosmetic composition has a pH of 4 to 9 and comprises water-insoluble primary particles; 15% to 70% by weight of polyol; a thickening polymer, less than 1% by weight of water-soluble salts and water.

Many possible materials are cited as suitable scrub agents but preferred are corn starch and cellulose and its derivatives and bentonite, talc, mica, kaolin and silica. The composition may also contain water-soluble scrub agents. Of the many listed inorganic particles such as sodium chloride, potassium chloride, magnesium chloride, or sodium carbonate are preferred but their presence is limited to less than 1%. The particles are agglomerated to form larger ones that will disintegrate on application. Agglomeration is achieved by binding the particles together using polyvinyl alcohol and a granulation process such as tumble drying or spray drying and they comprise approximately 20% by weight of the final composition.

The composition contains a high level of polyol, which prevents the particles disintegrating until diluted with water and is so designed that when the concentration of polyol drops below 10% to 15% they disintegrate and may be readily rinsed from the skin. The preferred polyols are sorbitol, mannitol, xylitol and glycerin, present at between 20% and 50% by weight in the final composition. A thickening aid such as a carboxyvinyl polymer or an acrylic acid-alkyl methacrylate is also required.

In addition the composition also contains anionic and non-ionic surfactants to add cleansing properties and other ingredients to enhance the aesthetic qualities and resistance to microbial contamination of the product and to improve its shelf life.

Title: Cosmetic dressings containing a waxy component, a film-forming agent and a gel-forming substance

USP Application: USP 20090196843

Serial Code & No 12/425750

Date of filing: April 17, 2009

Assignee: Schwan-Stabilo GmbH

According to the applicants, compositions that are applied to eyelashes are intended to provide good colouring and adhere well to the eyelashes, but they should also be easy to remove again. They should be easy to apply, they should impart an attractive shape to the eyelashes and they should retain that shape even after drying. In addition the compositions should be of such low viscosity that they can be satisfactorily applied but also dry quickly so that the material is not smudged. In addition the product is to be stable so that it can be stored under ambient conditions for a prolonged period of time.

The applicants claim to have created compositions that meet these requirements by combining a wax component, a film-forming system and at least one gel component, wherein the gel component has at least one swollen hydrocolloid in an o/w emulsion.

The wax component comprises waxes and oils which can be of vegetable, animal, mineral or synthetic origin. The wax component gives the material consistency and makes the preparation water-resistant and a combination of at least one wax with at least one oil is used to adjust the optimum consistency. Other materials which influence properties such as stability, viscosity, workability and durability may be included. In addition the preparation may contain an emulsifier system and a film-forming polymer

Film-forming materials like polyurethane-n and polyvinyl pyrrolidone are named as being particularly suitable. The component, which is essential to the invention, is a swollen hydrocolloid, which has a structure-forming action and stabilises the structure in such a way that the composition, after drying, forms a durable, water-resistant film and together with the film-forming agent and the wax component, retains all ingredients in the composition in such a way that they are not leached out, migrate out or bleed out. Of the many possible hydrocolloids listed rice starch or a rice starch derivative are preferred and it is said that particularly advantageous properties can be obtained with hydroxyalkyl- or dimethylimidazolidinone rice starch.

The patent is rather long and lists all oils, waxes, film-forming agents and other cosmetic materials that may be used for such compositions and is illustrated by the following formulation.

Material	%w/w
Copernicia cerifera (Carnauba) wax	2.30
Cera alba (beeswax)	9.20
Helianthus Annuus (Sunflower) seed oil	4.00
Stearic acid	1.70
Glyceryl stearate	1.70

Antioxidant	0.20
Aqua (Water)	48.00
Sodium lauryl sulfate	0.50
Iron oxides	3.40
Mica	3.40
Diazolidinyl rice starch	1.80
Almond oil PEG-6 ester	0.80
Preservative	0.20
Ethylene glycol	3.00
Acrylates copolymer	19.80

The amount by weight of the hydrocolloid (diazolidinyl rice starch) relates to the weight prior to swelling.

Most self-tanning products currently on the market contain dihydroxyacetone, or DHA. DHA causes skin darkening by reacting with the free amino groups in skin proteins or amino acids in the Maillard Reaction; the reaction of amines with sugars to create brown coloured compounds. DHA is often used in combination with erythrulose and the tan is superficial and affects only the stratum corneum. The following patent extracts describe various self-tanning compositions based on DHA.

Title: Self tanning effects

USP Application: 2009015532

Serial Code & No 12/194674

Date of filing: August 20, 2008

Assignee: Conopco Inc.

Claimed is a cosmetic composition and method for sunless tanning to impart a glow or shiny effect on skin. The composition includes a sunless tanning agent and coated beads incorporating tan coloured pigment. On application the beads disintegrate to provide an immediate tan while the sunless tanning agent acts more slowly and eventually replaces the pigment effect. Because the pigment is incorporated within the beads the composition can appear white, which renders the formula more aesthetically pleasing and more in line with the visual paradigm of a moisturiser rather than a foundation.

The sunless tanning agent is the sunless tanning is a combination of DHA and erythrulose in a relative weight ratio of 6:1 to 1:2, preferably a ratio from 4:1 to 2:1. The total amount claimed is from 0.05% to 15% but the optimum is said to be between 1% and 2% although an illustrative formula that is claimed to give good results contains 6% DHA and no erythrulose.

The beads have a matrix formed from mannitol, cellulose and hydroxypropyl methylcellulose and the pigments are iron oxides and possibly titanium dioxide. The beads are available commercially as Unispheres from Induchem and represent between 1% and 8% of the total weight of the composition. The pigment is embedded within the matrix and a polymeric coating surrounds each of the beads to prevent their premature dissolution.

The beads can swell in an aqueous medium but no leakage of pigment will occur because of pigment insolubility. They are incorporated into a water-in-oil emulsion and being relatively fragile, break when the composition is applied to the skin and the pigments are released.

An illustrative formula containing 6% beads and 6% DHA in a water-in-oil emulsion is as follows:

Ingredient	**% by weight**
Stearic Acid	2.40
Glyceryl Monostearate/Stearamide AMP	1.40
Glycerol Monostearate	0.65
Cetyl Alcohol	0.37
Petrolatum	1.25
Isopropyl myristate	1.30
Disodium EDTA	0.05
Glycerin	10.00
Simulgel Polyacrylate polymer	0.75
Titanium Dioxide	0.10
Triethanolamine (99%)	0.70
Glydant Plus	0.09
DMDM Hydantoin	0.17
Dimethicone 50 ct	1.50
Dimethicone DC 1501	0.50
Fragrance	0.30
Unispheres	6.00
Dihydroxyacetone	6.00
Water balance	To 100%

Title: Self tanning product having slimming, firming and toning properties associated therewith

USP Application: 20090130036

Serial Code & No 12/ 354361

Date of filing: January 15, 2009

Assignee: Goodier Cosmetics, L.L.C

Claimed is a sunless or self-tanning composition in emulsion form having slimming, firming and toning properties associated therewith. The water phase contains at least one solvent, such as water, at least one humectant, at least one phosphodiesterase inhibitor which functions as a slimming and toning agent, and at least one emulsion stabiliser or viscosity control agent, and at least one chelating agent. The preferred humectant is glycerin, the preferred chelating agent is disodium EDTA and the preferred emulsion stabiliser is xanthan gum.

The oil phase contains at least one additional viscosity control agent, a hydrocarbon solvent, an emulsifying agent, an emollient, an emulsion stabiliser, a buffering agent, skin colouring or self-tanning agents, a humectant, a lipolytic enzyme activator, an adipogenesis and lipogenesis inhibitor, a surfactant, an antioxidant, a catabolism enhancer, a cytokin production stimulation agent, a film former, a fragrance and preservatives.

The self-tanning agent is drawn from the group comprising DHA, erythrulose, melanin, mahakanni, walnut extract and combinations thereof. Examples of slimming and toning agents are given as caffeine, lipolytic enzyme activators such as bupleurum falcatum root extract and dihydromyricetin, or catabolism enhancers such as coenzyme A, and hypnea musciformis, gellididela acerosa, sargassum filipdendula and spirulina. The desired firming properties can be achieved by the inclusion of a cytokine production stimulator such as palmitoyl tetra peptide-7, or a heather or Pyrus malus extract.

The remaining ingredients are those in general use in cosmetic products provided they are compatible with the active agents and with each other.

Title: self-tanning cosmetic compositions and methods

USP Application: 20090092566

Serial Code & No 11/869297

Date of filing: October 9, 2007

Correspondence: Julie Blackburn NY

This patent claims every cosmetic product form utilising almost all possible cosmetic materials but the point of interest is the inhibition of the kinase enzyme found in human skin. Claimed is a self tanning composition containing at least one self tanning agent and at least one kinase inhibitor operable to inhibit the kinase induced phosphorylation of the self tanning agent; a method for increasing the efficacy of self tanning agents, and a method for tanning skin. Protein kinases, present in skin cells, transfer phosphate groups to DHA, thereby inhibiting its ability to bind to the amino groups in skin and therefore reduce its effectiveness The skin tanning agent is DHA either alone or in combination with glucose, fructose, erythrulose, xylose, or mixtures thereof. The kinase inhibitor is glyceryl-3 phosphate or one derived from a botanical extract having greater than about 0.1% ursolic acid content, which is operable to inhibit the kinase induced phosphorylation of DHA.

Formulations based on DHA are prone to oxidation: this patent gives potassium sulfite, sodium bisulfite, sodium erythrobate, sodium metabisulfite, sodium sulfite, propyl gallate, cysteine hydrochloride, BHT and BHA as examples of antioxidants suitable for use in such compositions.

Title: Colouring composition for the skin comprising a self-tanning agent and a dye obtained by reacting an amine with dehydroascorbic acid or a monomeric polymeric or isomeric derivative thereof

USP Application: 20090035241

Serial Code & No 12/169950

Date of filing: July 9, 2008

Assignee: L'Oreal S.A

According to the applicants a problem when using artificial sun tanning compositions incorporating DHA is the length of time the coloration takes to develop and the tendency to produce yellow shades that harm the production of a natural skin tone. It is possible to combine DHA with dyes, however, the susceptibility of DHA with respect to coloured iron oxides, and water-soluble azo, quinone or xanthene dyes limits their use.

The applicants claim that by combining a self-tanning agent with a dye that can be obtained by reacting dehydroascorbic acid or a monomer or polymer thereof with a compound containing a free amine function such as amino acids, proteins, oligopeptides, polypeptides, or protein hydrolysates it is possible to obtain an immediate healthy-complexion effect which is then reinforced over time.

An example of the preparation of such a dye is given as follows: a solution containing 5% dehydroascorbic acid and 5% glycine is prepared and then heated at 60°C for about 15 minutes. A strong red colour is observed, and the reaction is stopped by rapid cooling. The resulting solution is then freeze-dried to recover the dye obtained in a dry form. This is then utilised in a conventional o/w emulsion containing 2.5% DH and the resultant composition is said to be both effective and stable.

Title: Multiphase aqueous cleansing composition

USP Application: **USP 20050215443**

Serial Code & No **10/811362**

Date of filing: **March 26, 2004**

Assignee: **Clariant International**

Claimed is an aqueous multiphase cleansing composition with at least two visibly distinct phases for cleansing human skin and hair. When agitated it forms a single application phase and when left standing, the composition rapidly returns to at least two visibly distinct aqueous phases. The two phases are dispersible in one another to form a single application phase for use as a body wash, shower gel, bubble bath, hand soap or shampoo.

The composition may be dispensed in a clear container such as a bottle or a pump foamer. In using the pump foamer, the multiphase is first agitated and as the agitated phase is pumped, it produces a foam phase which remains stable for the period of its intended use. When returned to a standing state, the agitated phase returned to the multiphase appearance within 12 hours.

The composition comprises a surfactant, a betaine, a co-surfactant, a humectant, a salt, and water. The surfactant is 2 to 15% by weight of the total composition and is preferably selected from the group comprising ammonium lauryl sulfate, ammonium lauryl ether sulfate, sodium lauryl ether sulfate, and mixtures thereof.

The betaine is selected from the group consisting of an alkyl betaine; an alkylamido betaine, and mixtures thereof and represents up to 15% by weight of the total composition.

The co-surfactant is selected from the group consisting of an alkyl ether carboxylic acid or alkali metal or ammonium salt thereof; an acyl glutamate, acylisethioinate and salts thereof; salts of alkylamide ether sulfates, and mixtures thereof and comprises up to 15% by weight of the total composition.

The humectant is polyethylene glycol and is present within the range 2% to 30% and the salt selected from the group consisting of magnesium sulfate, sodium chloride, potassium chloride, sodium citrate, sodium sulfate, magnesium chloride, and mixtures thereof; is present at between 12% and 20% by weight.

The patent describes two and three phase systems and is well illustrated with example formulations.

Title: Mascara composition

USP Application: USP 20090087397

Serial Code & No 12/197352

Date of filing: August 25, 2008

Assignee: Avon Products Inc.

Described is a composition that thickens and lengthens keratin fibres, such as eyelashes, yet is readily removable by washing. Because the composition of the invention contains low levels of emulsifier and wax damage to the eyelashes upon removal of the composition is greatly reduced.

The composition is in the form of an oil in water (o/w) emulsion containing 16.5% of at least one wax from the group comprising paraffin wax, silicon wax, microcrystalline, ozokerite, polyethylene, candelilla, carnauba, beeswax and Japan wax. In addition the composition contains 1.65% of a low melting point wax like lanolin wax, jojoba wax, jasmine wax, orange wax, olive wax and mixtures thereof and 3% of shellac wax.

The aqueous phase represents about 55% of the total composition. The primary emulsifier is selected from the group consisting of triethanolamine oleate, triethanolamine palmitate, triethanolamine stearate and mixtures thereof but triethanolamine stearate formed in-situ is the preferred emulsifier at a preferred level of less than 2.5%. The composition optionally contains at least one secondary emulsifier selected from the group consisting of glyceryl stearate, glyceryl oleate, sorbitan stearate, sorbitan laurate, sorbitan olivate, and mixtures thereof, present at a maximum of 3%.

The composition of the present invention optionally contains one or more emollient moisturising oils: dimethicone copolyol meadowfoamate, wheat germ oil, macadamia nut oil, avocado oil, and mixtures thereof are most preferred and are present at about 2.5%. It also contains about 0.8% - 1% keratin conditioning agent of which algae extracts, hydrolyzed vegetable protein and propylene glycol-propyl silanetriol are most preferred.

The patent is well illustrated with example formulations and the final composition may also contain pigments and approved cosmetic colours, preservatives and other additives to improve the aesthetics and shelf-life of the formulation.

Title: Pest repellent compositions and methods

USP Application: USP 20090263515

Serial Code & No 12/424415

Date of filing: April 15, 2009

Assignee: Ecosmart Technologies Inc.

Claimed is a topical insect repellent with extended duration of protection obtained by combining natural and organic plant essential oil compounds. The composition comprises about 0.5% rosemary oil, 0.5% cinnamon leaf oil, 0.5% lemongrass oil, 0.5% wintergreen oil, and about 1% geraniol with canola oil at about 5%. The carrier is about 5% isopropyl myristate and it may also silicone, petrolatum, lanolin or any of several other well known carrier components and may also contain an emulsifier with the balance being isopropanol.

According to the applicants, desirable properties of a topical insect repellent include low toxicity, resistance to loss by water immersion or sweating, low or at least a pleasant odour, ease of application, and rapid formation of a dry tack-free surface film. It was the objective of the inventors to meet these claims with a DEET-free composition based on natural materials. It had to be effective for repelling insects and arthropods such as ticks, mites, mosquitoes, chiggers, punkies, noseeums, black flies, houseflies and other flying biting insects.

The patent describes test protocols to prove product efficacy in great detail.

Three patents that describe products for the cleansing and protection of babies' skin have been selected.

Title: Wet wipes with natural antimicrobial agents

USP Application: 20070141127

Serial Code & No 11/639046

Date of filing: December 14, 2006

Assignee: The Procter & Gamble Company

Wet wipes or wet-tissues are the general terms to describe a substrate, generally a non-woven material, impregnated with a suitable composition for the cleaning of the body. Claimed are wet wipes impregnated with an oil-in-water emulsion comprising a non-ionic silicone surfactant, a natural antimicrobial active and a buffer system having a pH value of between 2.5 and 5.0. The wipes may be used for personal cleansing, in particular as baby wipes.

According to the applicants the ideal pH of a baby's skin is 5.5 but their skin is often exposed to faeces and urine residues that increase the pH above its natural value. The inventors claim the composition used in wet wipes could advantageously have a pH below 5.0 and feature a buffer system. In these conditions, it was found that synthetic preservative agents could be partially or even completely replaced by natural antimicrobial actives. The inventors also believe that these conditions make the wet wipes of the invention particularly suitable for cleaning bodily waste and may sustainably bring back the pH of the skin to around pH 5.5.

Many silicone surfactants, pH buffer systems and potential natural antibacterial agents are named but in each case the preferred ones are as follows. The non-ionic silicone surfactant is a dimethicone copolyol, the preferred one being Bis-PEGPPG-1616 PEGPPG-1616 Dimethicone, available under the trade name Abil Care 85 from Degussa. The preferred buffer system is citric acid with sodium citrate and the preferred pH of the system is at least 3.5. The preferred natural antibacterial agent comprises an extract from a plant selected from the group consisting of olive tree, rosemary, white and green tea, balm mint, chamomile, liquorice and mixtures thereof.

The preferred level of dimethicone copolyol is about 2%; that of citric acid, 0.53% and of sodium citrate 0.3% or sufficient to maintain the pH of the composition between 3.5 and 4.5. One example shows benzoic acid 0.05%, sodium benzoate 0.25% in addition to the citric/citrate buffer system. The level of extracts used varies widely

according to their form and source. In addition the compositions may advantageously comprise a skin conditioning agent, such as an emollient and may contain various ingredients to improve the aesthetics, marketing claims and shelf-life of the final composition.

Title: Skin protectant spray compositions

USP Application: 20050266035

Serial Code & No 11/424401

Date of filing: August 11, 2005

Assignee: Pfizer Inc.

The U.S. Food and Drug Administration (FDA) has in the past defined a skin protectant as a drug that protects injured or exposed skin or mucous membrane surfaces from harmful or annoying stimuli. The FDA also publishes a list of approved materials and minimum percentages for products that claim to treat or prevent diaper rash.

The FDA will allow a claim to be made that a composition containing dimethicone is useful for treating diaper rash if the dimethicone concentration is from 1% to 30%. A similar claim can be made for a composition containing zinc oxide if the zinc oxide concentration is from 1% w to 40% and mineral oil if the mineral oil concentration is from 50% w to 100%.

Described is a liquid, water-repellent and substantially anhydrous composition designed for spraying directly onto skin. In particular the composition is designed to be sprayed onto babies bottoms to protect against diaper rash. The active ingredient for diaper rash may be dimethicone and preferably also zinc oxide and the composition includes one or more rheology modifiers and a carrier. The rheology modifiers help give the composition properties such that it can be sprayed using a spray pump dispenser but still resist running after it has been applied to the skin.

The rheological modifiers can be waxes or other thickeners; preferred is a mineral wax of melting point 65°C and fumed silica. The carrier can be mineral oil or a mineral oil replacement such as isohexadecane or cyclomethicone and a film-forming component may also be included. Many possible combinations are shown but the significant ranges are as follows:-

Ingredient	Minimum %	Maximum %
Dimethicone	0.8%	1.2%
Zinc Oxide	8.0	12.0
Mineral wax	1.8	2.7
Silica	1.7	2.5
Polymeric film-former e.g. Polyderm PPI-SI-WI	0.4	0.6
Synthetic wax film-former e.g. Performa V 825 Polymer	1.0	1.6
Cyclomethicone	6.8	10.2
Isohexadecane	4.5	6.7

Mineral oil	53.0	80.0

In addition the composition may contain and may contain various ingredients to improve the aesthetics, marketing claims and shelf-life of the final composition.

Title: Absorbent articles with lotions

USP Application: 20070219515

Serial Code & No 11/717928

Date of filing: March 14, 2007

Assignee: The Procter & Gamble Co.

Described is a lotion containing an absorbent powder to be applied to the inner surface of a diaper or similar to be worn by babies or incontinent adults. The lotion is solid or semi-solid at 20°C and the powder is held in suspension by polyhydroxy fatty acid esters, polyhydroxy fatty acid amides, C14-C22 fatty alcohols, C12-C22 fatty acids, C12-C22 fatty alcohol ethoxylates, and mixtures thereof. A petrolatum base with one or more of these ingredients is the preferred carrier for the absorbent powder. The coating composition is transferred to the wearer's skin by normal contact, wearer motion and body heat.

The particulate material is typically inert and insoluble in water and preferably insoluble in ethanol, but dispersible in water or ethanol. It includes all types of particulate forms such as granules, beads, spheres, micro-spheres and powders. Suitable materials include but are not limited to polystyrene, polypropylene and polyethylene copolymer particles, cellulose particles, polytetraflouorethylene particles, polymethylsilsequioxane particles and nylon particles but particularly preferred are polyolefin powders.

It is suggested that the absorbent powder enables lower levels of other treatment materials to be effective than are normally required. Examples are the lotion compositions can include hexamidine at about 0.1% or less, zinc oxide at about 1% or less and niacinamide at about 2% or less by weight to achieve equal or superior benefits in the prevention and treatment of skin disorders when compared to known lotion compositions that generally comprise these skin treatment agents at higher levels.

Other ingredients may be incorporated into the composition such as viscosity modifiers, wetting agents, perfumes, antibacterial actives, pharmaceutical actives, film formers, deodorants, opacifiers, astringents and solvents. In addition, stabilisers such as cellulose derivatives, proteins and lecithin can be added to enhance the shelf life of the lotion composition.

Title: Composite particles having an antioxidant-based protective system, and topical compositions comprising the same

USP Application: 20100040696

Serial Code & No 12/ 507145

Date of filing: **July 22, 2009**

Assignee: **The Estee Lauder Co**

According to the applicants zinc oxide or titanium dioxide have photo-protective characteristics and can be used as physical sunscreen agents, but their use is limited because of their tendency to cause generation of reactive oxygen species(ROS) upon exposure to UV light. To overcome this problem a topical composition comprising a dispersion of composite particles in a cosmetically or pharmaceutically acceptable medium is claimed. The composite particles comprise one or more core particles capable of releasing reactive oxygen species encapsulated within a polymeric shell. A first antioxidant capable of quenching or scavenging reactive oxygen species is co-encapsulated or co-entrapped with the core particles and a second antioxidant capable of preventing or reducing oxidative damage to the skin is coated over the polymeric shell.

The core particles are either TiO_2 or ZnO and the first antioxidant is selected from a large group of antioxidants but gamma-oryzanol is preferred. The second antioxidant is selected from an even larger group of antioxidants but ascorbyl tocopheryl maleate is preferred. The composition also includes an organic dye or an organic sunscreen agent susceptible to oxidative decomposition or degradation.

The antioxidant-based protective system is designed to reduce any potential oxidative stress by ROS that may be released by the core particles and to prevent them from causing the degradation of other cosmetic ingredients. It is also capable of scavenging excess ROS in the surrounding environment thereby protecting skin against any potential harmful effects of oxidative stress.

The average particle size of the core particles is most preferably from about 0.01 micron to about 0.05 micron and they can be added to any pharmaceutically or cosmetically acceptable carrier to form a cosmetic or topical composition, which may contain one or more skin care actives and other additives to improve the physical and aesthetic characteristics of the final product.

Title: **Particulate UV protection agent**

USP Application: **20100034893**

Serial Code & No **12/ 524741**

Date of filing: **January 23, 2008**

Assignee: **Merck Patent GmbH**

Titanium dioxide can have a pro-oxidative action after excitation by UV radiation and contribute to the formation of hydroxyl or peroxide free radicals. Described are particulate UV protection agents that are obtained by hydrothermal treatment of a particulate metal oxide and subsequent application of a manganese oxide coating, which can suppress the pro-oxidative properties of TiO_2. The claim includes novel compositions for topical application that contain the particulate protection agents, which are intended to protect the skin and hair against UV radiation and free-radical-induced stress.

The primary particles are of titanium dioxide of less than 25nm in diameter, which may optionally be doped with metal ions such as iron or cerium ions. Preferably the first coating consists of aluminium or silicon compounds and there is a second coating of manganese compounds.

The compositions incorporating the coated TiO_2 particles may include an organic UV absorber such as butyl methoxydibenzoylmethane or a benzophenone derivative, such as benzophenone-3. It may also include an antioxidant to reduce oxidative stress and prevent premature skin ageing. Alternatively the composition may be designed for self tanning and include dihydroxyacetone.

A silicon dioxide coating is preferred as the second coating and it is claimed that it increases the stability of dibenzoylmethane derivatives and ethyl-hexyl methoxycinnamate resulting in improved light-protection action and the coated particles also improve the stability of dihydroxyacetone.

Title: Cosmetic sun protection product based on W/Si-emulsions

USP Application: 20090185989

Serial Code & No 12/ 280185

Date of filing: February 20, 2007

Assignee: Coty Prestige Lancaster Group GmbH

Including organic sun protection filters in modern skin care products based on silicone oil has a number of drawbacks. Preparations with SPF >15 require incorporation of significantly higher amounts of organic sun protection filters than would be theoretically required to achieve the appropriate SPF because silicone oils do not readily take up such filters and exhibit a property which reduces the SPF.

Also satisfactory texture of the emulsion is difficult to achieve with increasing concentrations of filters. The soothing touch is lost, whitening effects appear, and the softness during and after applying the product to the skin becomes unsatisfactory. Claimed is a cosmetic sun protection product based on W/Si emulsions with improved effectiveness; high content of organic sun protection filters, a very good sensory profile and, in particular, a long-lasting soft touch. The composition includes 22-32 wt. % of a volatile, cyclic silicone oil; 2.0-4.0 wt. % of a non-volatile silicone elastomer; 0.9-2.8 wt. % of an emulsifier, 0.1-0.5 wt. % of an amino acid/fatty acid copolymer; 19-24 wt. % of a mixture of organic UVA and UVB filters and cosmetic adjuvants, excipients, active substances and mixtures thereof to make 100 wt. %. The sun protection product does not include any animal, vegetable or mineral oils.

The non-volatile silicone elastomer is selected from the group consisting of cross-linked polysiloxane, high-molecular weight silicone polyether, copolymers of polydimethylsiloxane and dimethylsiloxane and mixtures thereof. The emulsifier is a mixture of emulsifiers selected from the group consisting of fatty alcohol salts, fatty ether salts, fatty acid esters and mixtures thereof.

The fatty alcohol is behenyl alcohol; the fatty acid ester is glyceryl stearate, glyceryl stearate citrate and the fatty alcohol salt is sodium lauryl ether sulfate or sodium dicocoylethylenediamine-PEG-15 sulfate and it is claimed that a mixture of these imparts exceptional stability to the preparation. The aqueous phase of the preparations comprise water and between 5% and 20% of a polyol such as a glycol or glycerine. A rheological modifier such as a cellulose derivative, a natural gum or a polyacrylate polymer may also be included.

The preferred oil-soluble UV filters are benzophenone-3, butyl methoxydibenzoylmethane, ethylhexyl methoxycinnamate, ethylhexyl salicylate, 4-methylbenzylidencamphor, homosalate and ethylhexyl dimethyl PABA. Possible water UVB filters are sulphonic acid derivatives of benzophenone or of 3-benzylidenecamphor

or salts such as the Na or K salt of 3-phenyl-benzimidazole-5-sulfonic acid. Named UVA filters include butyl methoxydibenzoylmethane and menthyl anthranilate.

A popular beauty treatment is the removal of dead skin cells to enhance skin radiance or to prepare it for further cosmetic treatment. This process, called exfoliation, is commonly achieved through the use of micro-bead face scrubs, through micro-dermabrasion and by chemical means, the most common employ salicylic acid or glycolic acid. The following three patents describe possible alternatives; USP 200090232755 lists all possible means of exfoliation and describes a composition that may be used by any one of these methods. USP 2007023131 describes the use of a protease that specifically digests the peptide responsible for horny layer cell cohesion and USP 20060239949 describes the use of a silicone elastomer as an exfoliating agent.

Title: Combination therapies for treating photodamaged skin

USP Application: 20090232755

Serial Code & No 12/403249

Date of filing: March 12, 2009

Inventors: Baumann; Leslie: Fl.

Claimed is a method of reducing the appearance of fine lines and wrinkles on aged skin by applying in a dermatologically-acceptable carrier containing a safe and effective amount of an imidazoquinoline amine derivative in combination with a retinoid or hydroxyacid. The composition is administered using one or more cosmetic treatments selected from the group consisting of

(a) Light Emitting Diode (L.E.D.) Light Therapy

(b) Intense Pulsed Light (I.P.L.) Therapy

(c) Laser skin resurfacing

(d) Mechanical exfoliation

(e) Superficial, medium depth or deep chemical peels

(f) Radiofrequency treatment

(g) Ultrasound treatment

(h) Intradermal and intraepidermal injections with hyaluronic acid and derivatives thereof

(i) Cryosurgery

The preferred imidazoquinoline amine derivative is 1-isobutyl-1H-imidazo[4,5-c]quinolin-4-amine also known as imiquimod and present at between 0.1% and 5%. The alpha-hydroxy acid is selected from the group consisting of lactic acid, glycolic acid and salicylic acid and mixtures thereof to a total maximum concentration of 2% and the retinoid is selected from the group consisting of retinol, retinyl palmitate, retinyl acetate, retinyl propionate and retinal and combinations thereof to a maximum concentration of 3% by weight in the final composition.

Other active materials may be included to further enhance product efficacy and listed are anti-inflammatory agents; antioxidants; vitamins and their derivative, exfoliants including abrasive particles and skin soothing

agents such as panthenol, aloe vera, pantothenic acid, allantoin, and bisabolol and dipotassium glycyrrhizinate. Also listed are short-chain peptides, growth factors; conjugated linoleic acid; skin lightening agents, including tyrosinase inhibitors and agents that block or attenuate ultraviolet radiation. The compositions described are said to be suitable for use with any of the methods of exfoliation listed.

Title: Polypeptides and compositions derived from the horny layer of the epidermis and their use

USP Application: 2007023131

Serial Code & No 11/ 546842

Date of filing: October 11, 2006

Assignee: L'Oreal

Described is a composition comprising, in a physiologically acceptable medium, a purified natural or synthetic epidermis-specific polypeptide which is involved in horny layer cell cohesion. Also described is a mixture of polypeptides derived from the proteolysis of the purified polypeptide. The patent describes a method for strengthening horny layer cell cohesion and also a method for reducing horny layer cell cohesion, and thereby promoting exfoliation.

It specifically relates to a cosmetic or pharmaceutical composition comprising an effective quantity of at least one protease active on a polypeptide, comprising Endoproteinase LysC, Endoproteinase GluC, Proline-Endopeptidase, Thrombin, Pepsin, Myxobacter AL 117 and Elastase: wherein the polypeptide comprises the amino acid sequence listed in the patent.

Research by the applicants discovered a polypeptide in human epidermis specific to the hornified epithelia. This polypeptide, named "corneodesmosine" is expressed in the horny layer of the epidermis and is involved in intercorneocyte cohesion and is preferably obtained from human epidermis although it may be obtained from other animal sources or by biofermentation. Preferably, the polypeptide is a basic, phosphorylated, glycosylated polypeptide having an apparent molecular weight of between 52 and 56 kilodaltons.

Some pathological conditions cause thinning of the epidermis and, in particular, of the horny layer, resulting in excessive fragility, which may be due to excessive desquamation caused by a deficiency of polypeptides involved in intercorneocyte cohesion. The composition is intended for strengthening intercorneocyte cohesion and inducing the thickening of the horny layer.

Another objective of the applicants was to provide a cosmetic treatment for combating excessive intercorneocyte cohesion and therefore for increasing desquamation. The method consists in applying a cosmetic composition comprising at least one protease having a specific recognition and binding and cleavage site within the primary amino acid sequence of the polypeptide discussed.

Depending on the mode of administration, the compositions described may be provided in any of the forms normally used for a topical application to the skin. Examples are an aqueous or oily solution or dispersion of the lotion or serum type, emulsions of liquid or semi-liquid consistency of the milk type, or emulsions of soft consistency of the aqueous or anhydrous cream or gel type, or of microcapsules or microparticles prepared according to customary methods.

The composition may also contain adjuvants common to cosmetics such as hydrophilic or lipophilic gelling agents, hydrophilic or lipophilic additives, preservatives, antioxidants, solvents, perfumes, fillers, screening agents, odour absorbers and colouring materials. The quantities of these various adjuvants are those conventionally used in the cosmetic field.

Title: Silicone elastomer exfoliating compositions

USP Application: 20060239949

Serial Code & No 11/ 112400

Date of filing: April 23, 2005

Assignee: The Estee Lauder Cos, Inc

Claimed is an exfoliating composition containing silicone elastomer powder the total weight of which in the composition is preferably between 37% and 50% by weight. The particle size of the silicone elastomer powder is between 1 micron and 10 microns and it is added as an aqueous dispersion in a cosmetically acceptable carrier.

The final composition may also contain one or more cosmetically acceptable materials used to preserve or alter the physical properties of the composition such as abrasives, absorbents, anti-caking agents, antifoaming agents, antifungal agents, antimicrobial agents, antioxidants, binders, biocides, buffers, bulking agents, pH adjusters and other materials to improve the aesthetics, efficacy and stability of the composition.

Although the elastomer is in powder form, once applied to the skin it exhibits good substantivity and may not easily rinse off the skin. A sufficient amount of the composition is applied to an area of skin in need of exfoliation treatment. After the area to be treated has been satisfactorily covered by a spreading action, the user may commence a rubbing action causing the composition will pill into visible flakes. As the rubbing action progresses, a sufficient quantity of flakes appears on the skin to initiate exfoliation. Soon the formation of flakes will be complete and at this point, continued or extended rubbing action causes the maximum amount of exfoliation. As a result of the extended rubbing, dead skin, skin metabolites and skin surface adherents transfer to the flakes. The flakes may be removed from the exfoliated skin by rinsing with water or patting with a towel. Advantageously, the flakes, combined with the extended rubbing action, provide an effective mechanical exfoliation of the skin.

The size and irregular shape of the flakes cause them to have more contact with the skin than the spherical silicone particles in the base material. The degree of contact with the skin makes the flakes useful as mechanical exfoliants. At the same time, the flakes retain some of the softness of the silicone elastomer and so the flakes, while being effective for exfoliation, are not nearly as harsh as many mechanical exfoliant materials.

Essential oils are popular additives for cosmetic compositions and have often been examined for their antimicrobial properties in order to provide alternative means of preservation. The following patent abstracts describe two methods of utilising their antimicrobial properties and the third abstract describes the use of aromatherapy compositions to treat the seven master chakras and the aura of the person being treated.

Readers are advised to pay careful attention to cosmetic regulations in their respective markets with particular reference to labelling and the making of claims.

Title: Preservative system for cosmetic formulations

USP Application: 20100120911

Serial Code & No 11/ 434747

Date of filing: May 4, 2009

Assignee: Sabinsa Corp.

With chemical preservatives under scrutiny by regulatory scientific bodies and increased anti-microbial resistance to such compounds there is an impetus to develop botanical alternatives to chemical preservatives. The inventors claim that it would be more appropriate to develop preservative systems where natural preservative compositions include ingredients that have both anti-microbial and anti-oxidant effects. The anti-oxidant effects of the ingredients may synergistically enhance the anti-microbial efficacy by inhibiting the deleterious effects of lipid peroxidation, which can promote microbial growth.

Described is a two component preservative system comprising adding synergistic blends of fractionated essential oils, extracts and isolated compounds to the cosmetic composition then utilising an optimised pasteurisation method for reducing the existing microbial contamination load of the cosmetic product. It is claimed that the presence of the blend sustains the effects of pasteurisation through anti-microbial and anti-oxidant effects.

The pasteurisation step is carried out at 63°C for 30 minutes followed by slow cooling to ambient temperature. The microbial load is assessed before and after the pasteurisation step and the final loading should be minimal. A blend of cinnamaldehyde; thymol; eugenol; citral; monolaurin, garcinol and supercritical fluid extracts of Magnolia officinalis and honokiol is then added to sustain acceptably low levels of microbial contamination of the cosmetic composition during storage and use.

Various concentrations of the different oils are suggested of which about 22% of a preferred blend is cinnamaldehyde; from about 14%-15% is thymol; about 15% is eugenol; between 17% to about 18% is citral, about 28% to 29% is monolaurin and about 3% is garcinol . Other blends are described including one comprising about 61% thymol; about 38% monolaurin and 1% of isolated magnolol obtained from the supercritical fluid extracts of Magnolia officinalis. The active ingredients named in the blends may be obtained by adding natural oils such as cinnamon, clove oil and lemongrass to the composition.

Title: Enhanced antimicrobial activity of plant essential oils

USP Application: 20090285904

Serial Code & No 13/ 509683

Date of filing: July 27, 2009

Inventors: Van Beek; Ronald R.; IA.

Antimicrobial compositions based on a combination of plant essential oils of enhanced antimicrobial effectiveness are prepared by adding a polyionic organic enhancer or a polyionic inorganic enhancer.

An example of a polyorganic polyionic enhancer is polyetheyleneimine and examples of polyionic inorganic enhancers are sodium tripolyphosphate and sodium hexametaphosphate. The anti-microbial composition also

includes at least one sesquinterpenoid selected from the group consisting of farnesol, nerolidol, bisabolol and apritone.

One preferred composition it is a mixture of plant essential oils wherein at least one of the oils is oregano oil and this may be mixed with thymol and may comprise between 55% and 90% by weight of the total antimicrobial composition. Alternative second oils include menthol, methyl salicylate, eucalyptol, eugenol, isoeugenol, spearmint oil, peppermint oil, lemon oil, rosemary oil, cinnamon oil, clove oil and others known to have an antimicrobial effect. They are present in a 1:1 ratio and may be encapsulated within a coating of fatty acids, waxes, sugars or shellac using fluidised bed encapsulation techniques.

An example blend is shown as 47.5% oregano oil, 23.75% cinnamon bark oil, 23.75% clove oil and 5% capsicum oil resin. Other oil blends may also be used such as: 46% oregano, 22% cinnamon bark, 22% clove, 5% nerolidol and 5% capsicum. A third blend formulation is 30% oregano, 30% cinnamon bark, 30% clove, 5% nerolidol and 5% capsicum and a fourth blend formulation is 36.20% oregano, 18% cinnamon bark, 17% clove, 4% nerolidol, 0.8% oleoresin capsicum, 4% cranberry, 6.60% geranium, 6.67% patchouli, and 6.67% tea tree. A fifth blend formulation is 33% regular oregano, 33.34% clove, and 33.34 cinnamon and a sixth blend formulation is 95% rosemary oil and 5% nerolidol.

Other ingredients include up to 5% of by weight of an organic acid selected from the group consisting of acetic acid, citric acid and fumaric acid.

Title: Aromatherapy formulations and treatment system

USP Application: 20040241186

Serial Code & No 10/ 446387

Date of filing: May 28, 2003

Inventor: Huang, Wentsan G, NY

Described is an aromatherapy treatment system that utilises a sprayable solution of essential oils mixed with distilled water to produce healthful effects. The solution is applied to the seven master chakras and the aura of the person being treated, and may be used in conjunction with meditation. A special combination of essential oils is related for treatment of each of the seven master chakras, and also for the aura. In each case the total level of essential oils is between 1% and 3% in distilled water.

The first chakra is the front and the back of the base of the spine of the person and frankincense, rosewood, and cedar wood oils in distilled water is the chosen mixture. The second chakra is the front and back of the lower abdomen for which sandalwood, jasmine, and rose oils are used and the third is the front and back of the solar plexus and mandarin, vetiver, juniper berry and neroli are the preferred essential oils.

The fourth chakra is around the front and back of the sternum for which a mixture of bergamot, rose, and melissa are claimed and the fifth mixture is German chamomile, Roman chamomile, and lavender for the front and back. The sixth is a one percent solution of rosemary, juniper berry, helichrysum and thyme oils mixed in distilled water for the front and back of the head of the person and the seventh chakra is the top of the head for which frankincense, rosewood, and lavender oils are selected.

The solution for treatment of the aura emanating from the body of the person preferably has a mixture of juniper berry, rosemary, and Atlas cedar wood oils mixed in distilled water and is sprayed around the perimeter of the body of the person.

Title: Solid hair conditioning product

USP Application: 7,670,998

Serial Code & No 10/501,199

Date of filing: January 13, 2003

Assignee: Cosmetic Warrior Ltd. (Poole, Dorset, GB)

Described is a cosmetic product in solid form for conditioning hair comprising at least one hair conditioning ingredient. The solid is formed from cocoa butter, cetearyl alcohol, sodium lauryl sulphate, glyceryl stearate and PEG 100 stearate. The at least one hair conditioning ingredient is a known hair conditioning ingredient, such as lanolin or cetrimonium bromide. The product may be combined in a bar or a small shape with shampoo.

In the background to the invention it describes conventional conditioning products as liquids requiring plastic containers and preservatives. The container adds significantly to the product cost and environmental pollution is caused by the disposal of empty containers. If the need for plastic containers could be eliminated the environmental impact caused by the product would be significantly reduced.

It is the objective of the inventors to create a conditioner in solid form that has the same or an improved effect on the hair as a conventional liquid formulation and that did not need packing in solid plastic containers. It was found that a simple mixture of certain known hair conditioning ingredients, together with a vegetable fat, and in particular cocoa butter, produced a solid product. Optionally, the cocoa butter can be used in combination with other emulsifying waxes or such waxes may be used alone. With appropriate control of the process conditions, emulsification of the product ingredients with water can also be achieved to provide a stable solid form product.

An example formulation is as follows:-

Ingredient	%w/w
Cetearyl Alcohol (and) Sodium Lauryl Sulfate	25.0
Glyceryl Stearate (and) PEG 100 Stearate	10.0
Cetearyl Alcohol	5.0
Cetrimonium Bromide	1.5
Lanolin	1.5
Propylene Glycol	27.0
Water	5.0

T**itle: Hair shampoo composition**

USP Application: 7,544,648

Serial Code & No 10/825,315

Date of filing: **April 16, 2004**

Assignee: **Kao Corp. Tokyo, JP**

Claimed are hair shampoo compositions that have good foaming performance, impart a pleasant feel to hair and prevent hair damage. According to the applicants alkyl sulphates typified by sodium dodecyl sulphate have frequently been used as a cleansing component of shampoos because of their high detergency and high foaming ability. However lack of lubrication between hair strands results in a poor feel and in order to overcome this alkyl ether sulphates are in popular use. Alkyl ether sulphates are however much inferior in foaming speed compared with alkyl sulphates. Mixed use of an alkyl sulphate and an alkyl ether sulphate improves lathering properties but cannot attain both fast foaming and a pleasant feeling of the foam.

A shampoo composition was prepared using a mixture of sodium laureth (2EO) sulphate with sodium lauryl sulphate and containing an amphipathic amide lipid or pseudoceramide. Its foaming properties; the lubricated feeling upon shampooing and the resilience and strength, gloss and manageability of hair after drying was evaluated. It was found that the combination described gave a greatly improved product.

Illustrative Formula

Ingredients	%w/w
Mixed sulphated surfactants	8.00
Lauramidopropyl betaine	3.00
Cocamide MEA	0.70
Glycol distearate	3.00
Hydroxyethylcellulose	0.20
Amphipathic amide lipid (Pseudoceramide)	2.00
Glycerine	1.00
Salicylic acid q.s. for pH adjustment	

Title: **Non-oxidative hair colouring using yogurt**

USP Application: **7,238,210**

Serial Code & No **10/505,144**

Date of filing: **August 20, 2004**

Assignee: **Quest Int. B.V. Naarden, NL.**

Claimed is a non-oxidative hair colouring composition, comprising yogurt or yogurt-derived material and a method of improving the colouring effects of non-oxidative hair colouring compositions. It improves dye deposition onto hair or may be incorporated into a shampoo or conditioning composition for use on hair after dyeing to help maintain the hair colour.

The yogurt or yogurt-derived material comprises whey, whey concentrates or non-fat dry milk fermented with yogurt bacteria. The yogurt-derived material is modified yogurt obtained by removal of at least some casein

protein from the yogurt and it is incorporated in suitable compositions at from 0.01% to 5% but preferably between 0.25% and 1%. It may be spray dried and is then referred to by its trade name, Yogurtene.

Non-oxidative hair colours include temporary hair colours that are readily washed out, semi-temporary dyes that are cationic in charge, which helps to bind dye molecules to the hair surface, and semi-permanent dyes that are normally small molecular size nitro-dyes, which are able to penetrate the hair shaft, making them more resistant to removal by washing.

According to the applicants many products contain a combination of different dye types. For example, some semi-temporary dyes are mixed with the semi-permanent dyes to produce more natural looking shades. The demi-permanent and permanent products can provide a wide variety of colours even on dark hair because the natural hair colour is bleached during the process. The use of the temporary, semi-temporary and semi-permanent colours are dependent upon the individual's natural hair colour; a dark haired person cannot become blonde.

It was found that yogurt or yogurt-derived material has the effect of enhancing the colouring effects of non-oxidative dyes and also enhances the colour-fastness of hair dyed or coloured by non-oxidative methods. Test protocols are described whereby a colouring conditioner composition containing cationic dyes was used to colour hair tresses. They were divided into two sets and subjected to seven washes by a conventional shampoo, one shampoo variant containing 0.5% Yogurtene and one without to act as control. The control shampoo was shown to cause a high loss of hair colour over the seven washes and incorporation of the Yogurtene into the shampoo base reduced the amount of colour loss.

The second series of tests comprised adding 0.5% Yogurtene to a conditioning type base containing semi-permanent nitro dyes. It was found that dye uptake was much higher when compared to controls not containing Yogurtene.

Semi-permanent Conditioner Formula

Trade Name	%w/w	INCI Name
Propylene glycol	10.00	Propylene glycol
Natrosol 250HHR	1.50	Hydroxyethylcellulose
Phenonip	0.50	Phenoxyethanol & parabens
Water	83.75	Aqua
Plantacare 2000 UP	0.25	Decyl glucoside
Cetyl alcohol	1.50	Cetyl alcohol
Ceteareth-20	1.50	Ceteareth-20
Yogurtene	0.50	Yogurt powder
Ethoxydiglycol	5.50	Ethoxydiglycol
Water	4.20	Aqua
3-Nitro-p-hydroxyethylaminophenol	0.30	3-Nitro-p-hydroxyethylaminophenol

Title: Conditioning detergent compositions

USP Application: 0050019299

Serial Code & No 10/623999

Date of filing: July 21, 2003

Assignee: Johnson & Johnson

Claimed is a conditioning composition in the form of a shampoo, a conditioner, a body wash, or a shower gel. It is clear and does not contain pearlising additives or suspending aids. It contains at least one anionic, amphoteric or nonionic surfactant and a conditioner comprising at least one branched cationic polymer and a silicone compound that is matrix soluble. The composition imparts cleansing, wet detangling, dry detangling and manageability to hair and is relatively non-irritating and thus suitable for use by young children and adults having sensitive skin and eyes.

The preferred non-ionic surfactant is decyl glucoside or PEG-80 sorbitan laurate, polysorbate-20 or PEG-80 sorbitan laurate, present at between 4% and 8%. Preferred amphoteric surfactants include cocamidopropyl betaine, lauryl betaine, cocamidopropyl hydroxysultaine and disodium lauroamphodiacetate or mixtures of these, present at between 0.5% and 6%. Preferably the anionic surfactant is comprised of sodium trideceth sulfate, sodium laureth sulfate, disodium laureth sulfosuccinate, or mixtures thereof.

The preferred cationic conditioning aids are guar hydroxypropyl trimonium chloride, cetyl triethylmonium dimethicone copolyol succinate, steardimonium hydroxypropyl panthenyl PEG-7 dimethicone phosphate chloride and mixtures thereof. Suitable matrix soluble silicones include trimethylsilylamodimethicone, dimethicone copolyol, and amodimethicone.

Optional ingredients include secondary conditioners, humectants, chelating agents, and additives which enhance the appearance, feel and fragrance, such as colorants, fragrances, preservatives, pH adjusting agents, and the like. The pH is preferably maintained in the range of from about 5.5 to about 7.2.

Title: Insect repellent composition containing essential oils

USP Application: 0050112164

Serial Code & No 10/ 719851

Date of filing: November 24, 2003

Inventor: Lewey, Alison

The inventor claims that the patent relates generally to insect repellents, and more particularly to all-natural insect repellents with a high degree of efficacy in repelling insects; arthropods, and other biting pests without resorting to the use of chemical additives in general or DEET (N,N-diethyl-m-toluamide) in particular.

Described is an insect repellent blend of active and inactive organic ingredients. The active ingredients are essential oils blended in vegetable oil. The essential oils are selected based on their inherent individual repellent properties and, in the preferred embodiment, on their synergistic effect in combination with each other to

increase their repellent properties. The inactive ingredients are selected on the basis of their ability to blend well with essential oils without adverse reaction while at the same time providing a pleasant medium for application onto human skin.

The preferred essential oils and their levels by weight in the composition are between 5.5% and 6% lemongrass oil; between 1% and 4% peppermint oil; between 1% and 4% thyme oil; between 0.75% and 3% geranium oil; between 0.75% and 3% rosemary oil in a carrier blend comprising between 60% and 95% soybean oil and between 0% and 20% by weight wheat germ oil.

The results of testing the formulation against a control by using a mosquito cage on treated and untreated areas of a person's skin were recorded. The exposure was repeated over an extended time period without further application of the formulation. Altogether each subject was exposed to mosquitoes 135 times over the five different time intervals on treated and untreated areas. The control experienced a total of 432 bites, for an average of 3.2 bites per test interval whereas the preferred formulation experienced a total of 37 bites over all time intervals, for an average of 0.274 bites per time interval.

The conclusion reached from the experiment was that the preferred formulation has a very high efficacy rate through four hours, but then the efficacy erodes substantially by the sixth hour post-application. A comparison against a DEET-based formulation showed it to be as efficacious as DEET for the first four hours but less long-lasting.

Title: Composition of sunscreen and colour-changing markers

USP Application: 0060067896

Serial Code & No 11/ 240876

Date of filing: September 30, 2005

Inventor: Schaffer; Robin

Claimed is a sunscreen or sunblock product that combines sun protection and colour marking that enables a user to visualize when the product needs to be re-applied. It is intended to encourage use of sunscreen, especially among young children. The colour markings typically stay on the skin only as long as the sunscreen, thus providing an indication that more sunscreen needs to be applied for adequate sun protection.

A sunscreen is formulated to contain a colour-triggering developer which is initiated by the application of a colour precursor. Once the sunscreen is applied to the skin, the colour precursor may be applied by a marking device, such as a roller, pen, marker or wipe. Alternatively, a second lotion that contains the colour precursor may be applied by hand to create, for example, handprints or finger-paint designs. Colour markings may thus be created at selected locations on the skin and are claimed to be fun to wear and less messy to the general environment.

A preferred embodiment uses a leuco dye or leuco dye intermediate as the colour precursor in the sunscreen. The colour-triggering developer in the marking composition is a Lewis acid, such as activated clay, phenolic resin, zinc containing resin, and combinations thereof. Typically sunscreen containing the developer is applied to the skin and then the precursor applied using a marking device. Application of the marking device on the sunscreen-

coated skin facilitates a chemical reaction that produces colour corresponding to the leuco dye intermediate. Little or no coloration occurs by using the marking device on surfaces other than that part of the skin that is covered with the sunscreen.

The leuco dye intermediates are sensitive to oxidation and acidic environments and various ones are commercially available under the trade name Copikem from the Hilton Davis Company, Cincinnati, Ohio. From 2% to 6% of the leuco dye is introduced into a suitable solvent for application to the skin. The composition may also include at least one buffer, such as an amine, in order to inhibit the premature acidification of the dyes and an antioxidant to prevent premature oxidation.

The sunscreen base may contain an effective amount of one or UV-B actives or a mixture of one or more UV-B actives and one or more UV-A actives and an effective amount of a colour-triggering developer. The preferred colour-triggering developer is a zinc carboxylic resin; the zinc acts as a Lewis acid and causes the rearrangement of the dye molecule, resulting in the development of the desired chromophore of intense colour.

Title: Use of benzotriazole UV absorbers

USP Application: USP 7179924

Serial Code & No. 11/046,913

Date of filing: 31-01-2005

Assignee: Ciba Specialty Chemicals Corp

According to the applicants, when human hair is exposed to sunlight over a prolonged period, various forms of damage may occur. Hair that has been coloured with dyes may undergo changes in colour and shade under the action of sunlight. Blonde hair becomes yellowish. The surface of the hair becomes rougher and at the same time drier. In addition, in time the hair loses its shine.
The use of UV absorbers can effectively protect natural and dyed hair from the damaging rays of the sun. Unfortunately, however, the UV absorbers used hitherto have insufficient affinity for human hair; they are easily washed out and therefore have only a short-term effect. However certain uncharged and cationic benzotriazole UV absorbers exhibit very good substantivity in respect of human hair and at the same time provide effective UV protection and these are the subject of this patent. The benzotriazole derivatives are broadband UV filters, distinguished by a high degree of photostability and are readily soluble in polar solvents, especially cationic surfactants.

The benzotriazole UV absorbers may be incorporated in any common form of cosmetic composition but conditioning emulsions are preferred and the benzotriazole is present at 0.25 to 15%. The benzotriazole UV absorbers also exhibit a pronounced antimicrobial action, especially against pathogenic gram-positive and gram-negative bacteria and also against skin flora, yeasts and moulds.

They are suitable as antimicrobial active ingredients and preservatives in personal care preparations, for example shampoos, bath additives, hair-care products, liquid and solid soaps and comprise from 0.01 to 15% by weight, preferably from 0.1 to 10% by weight, based on the total weight of the composition although the given examples limit the level to 5%.

Title: Cosmetic preparation containing polycarbonates

USP Application: USP 7179880

Serial Code & No 10/495,391

Date of filing: 06-11-2002

Assignee: Cognis Deutschland GmbH

Described is a cosmetic composition comprising a polycarbonate, an oil, an emulsifier and water, which is claimed to improve water-resistance of cosmetic compositions, particularly sun protection products. The polycarbonates particularly preferred have a molecular weight of 500 to 5,000 and are incorporated at 1 to 5% by weight, based on the final formulation of the cosmetic preparation.

Polycarbonates are polyesters of carbonic acid and diols obtained from polycondensation and transesterification reactions by reaction of diols with phosgene or carbonic acid diesters. Although polycarbonates are normally a viscous or tacky materials they are easy to incorporate and, besides sensory advantages provide the compositions described with improved water resistance.

The preparations contain at least one oil component, which enables the sensory properties to be optimised and a distinct improvement in sensory properties is achieved when dialkyl ethers and/or dialkyl carbonates are used, either on their own or in conjunction with other oil components. In addition, the silicone compounds cyclomethicone and dimethicone may advantageously be incorporated.

Nonionic emulsifiers are preferred for their kindness to the skin, their mildness and their ecotoxicologically favourable properties. In addition, the stability and sensory properties of the compositions can be improved by the use of a combination of nonionic w/o and o/w emulsifiers and a particularly preferred combination is commercially available as Eumulgin VL 75, a mixture of polyglyceryl-2 dipolyhydroxystearate with lauryl glucoside and glycerine.

The compositions claimed are an extensive list of product forms, containing organic and non-organic UV absorbers, typically in w/o or o/w emulsions, and with all the commonly used ingredients currently found in cosmetic products to improve their stability, sensorial attributes and aesthetic qualities.

Title: Stabilisation of UV-sensitive active ingredients

European Application: EP1423149

Application No. EP 20020797598

Date of filing: 21-8-2002

Assignee: Beiersdorf AG

Claimed are cosmetic and dermatological formulations containing at least one UV-sensitive active ingredient stabilised against decomposition through addition of at least one dialkyl naphthalate and at least one phosphate or sulphate emulsifier.

According to the applicants, approximately 90% of the ultraviolet radiation that reaches the earth consists of UV-A rays. Whereas UV-B radiation varies greatly depending on numerous factors such as time of year, time of day and latitude, UV-A radiation remains relatively constant irrespective of seasonal and diurnal or geographic factors. At the same time, most of the UV-A radiation penetrates into the living epidermis, while about 70% of the UV-B rays are retained by the horny layer. It is therefore of fundamental importance that cosmetic and dermatological photo-protective preparations provide adequate protection both against UV-B and against UV-A radiation.

The concentration in which photo-protective substances present as solids are used is often restricted; in particular in combination with other substances which are to be dissolved. There are thus technical difficulties with regard to formulating compositions with relatively high sun protection factors and UV-A protection performance. Advantageous UV-A filter substances are dibenzoylmethane derivatives, in particular butyl methoxydibenzoylmethane (BMDBM). The main disadvantage of all dibenzoylmethane derivatives which absorb in the UV region is instability toward UV radiation so these components are decomposed under the influence of UV to give inactive products and are no longer available for UV absorption. Preparations with a content of these substances therefore expediently also comprise certain UV stabilisers such as octocrylene and 4-methylbenzylidene-camphor.

The applicants claim that the addition of at least one dialkyl naphthalate and at least one phosphate or sulphate emulsifier stabilises BMDBM and that the stability of UV-sensitive active ingredients in oil-in-water formulations can be increased considerably. It is also claimed that the preparations exhibit very good sensory and cosmetic properties.

The much preferred dialkyl naphthalate is diethylhexyl naphthalate incorporated at 0.5 to 15% by weight and the preferred phosphate emulsifier is cetyl phosphate, trilaureth-4 phosphate or tricetyl phosphate although others may be used to advantage. The preferred sulphate emulsifier is sodium cetearyl sulfate.

Title: Mattifying oil-in-water emulsion

USP Application: 7,192,599

Serial Code & No 10/162,472

Date of filing: June 3, 2002

Assignee: MMP, Inc.

The applicants claim that there is a need for durable, cosmetic creams and lotions which can rapidly produce a uniform, matte appearance without creating irritation when applied to the skin and the patent describes cosmetic and pharmaceutical oil-in-water emulsions that have a mattifying effect on application. They comprise a hydrophilic, non-organically modified magnesium aluminium silicate or bentonite clay and a polyol in the water phase; and a volatile, skin-compatible, lipophilic solvent and a high melting point lipophilic plasticiser in the oil phase. A preferred surfactant system to stabilise the emulsion includes non-toxic metal alkyl sulfates and sucrose esters.

Various ingredients may be used to impart a mattifying effect including aluminium starch octenyl succinate, zinc oxide, titanium dioxide, kaolin, mica, magnesium aluminium silicate and bentonite; the two latter materials being preferred by the inventors. Suitable polyols include hexylene glycol, polymeric polyols such as polypropylene glycol and polyethylene glycol, propylene glycol, butylene glycol, sorbitol and glycerin, with glycerin being preferred. It is suggested that the polyol, in combination with the high melting point lipophilic plasticiser, allows for a more uniform covering without residual white splotches common to similar compositions.

Suitable volatile lipophilic solvents include cyclopentasiloxane and isododecane and mixtures thereof. The high melting point lipophilic plasticiser appears to coat or plasticise the surface of the powder ingredients, thus preventing them from being oxidized and thereby whitened. Solid fatty alcohols having from 14 to 30 carbon atoms per molecule may be used but the most preferred are cetyl and cetearyl alcohols. These fatty alcohols also provide a desirable semi-occlusive moisturising action.

Surface active agents provide uniform dispersion and emulsification of the lipophilic components and the preferred surfactant system is about 0.25 % sucrose stearate and about 0.25% sodium cetearyl sulfate, which results in formulations with very desirable mildness characteristics. In order to produce the desired products, the basic components described above may be combined with other cosmetic and pharmaceutical ingredients to improve the efficacy, aesthetics and stability of the compositions.

Title: Cosmetic and dermopharmaceutical compositions for skin prone to acne

USP Application: 7,182,963

Serial Code & No 10/817,670

Date of filing: April 2, 2004

Assignee: Sederma, Fr.

Described are materials derived from Olea europaea (olive) leaves that are intended for all types of cosmetic and dermopharmaceutical compositions for all forms of skin care, for moisturising and anti-inflammatory purposes and, in particular, for the prevention and treatment of skin prone to acne.

The active ingredient is oleanolic acid, which is present in the final composition at an amount between 10 ppm and 1,000 ppm. In addition the compositions may also contain between 10 ppm and 1,000 ppm nordihydroguaiaretic acid extracted from Larrea divaricata. The preferred levels are oleanolic acid present from 5 ppm to about 50 ppm and nordihydroguaiaretic acid between 1 ppm to about 100 ppm.

In addition the compositions also contain at least one other ingredient employed in the treatment of acne and hyper-seborrhoea selected from the group consisting of lipids, gelling polymers, viscosity modifiers, surfactants, emulsifying agents, water soluble active substance, fat soluble active substance, plant extract, synthetic peptides, proteins, vitamins, tissue extracts, marine extracts, sunscreens and antioxidants.

According to the applicants there is no acne without hyper-seborrhoea and, broadly speaking, acne is proportional to the degree of seborrhoea. Sebum secretion is under hormonal control and constitutes one of the best indicators of androgen levels explaining the emergence of acne at the time of puberty, during which a physiological hormonal explosion occurs. The androgen hormone most involved in acne is testosterone which

enters the target cell; the sebaceous gland. There, an enzyme, 5-alpha.-reductase, converts testosterone to its metabolite, dihydrotestosterone (DHT), which stimulates the synthesis of nuclear proteins, which are irritants and responsible for the inflammation that occurs with acne.

Oleanolic acid and extracts of Olea europaea (Olive) leaves have a strong inhibitory action on the enzyme, 5-alpha-reductase, and thus constitute an important component in the treatment of the symptoms of acne-prone skin. They also have antimicrobial activity against Corynebacterium acnes and Acinetobacter calcoaceticus, two micro-organisms associated with acne.

The compositions may be further enhanced by the addition of Osmocide-2, a proprietary mixture of caprylyl glycol and sodium polyacrylate with PEG-8, glycerin and water, also obtained from Sederma. The patent describes various test protocols to show the inhibitory and anti-inflammatory activity of oleanolic acid, with and without the presence of nordihydroguaiaretic acid. Results show that oleanolic acid is primarily responsible for the inhibitory action on the enzyme 5-alpha-reductase while nordihydroguaiaretic acid is responsible for anti-inflammatory activity and inhibition of keratinocyte proliferation and that there is a synergistic action when both materials are used together in the composition.

Tests for antimicrobial activity showed that oleanolic acid exerted selective antimicrobial activity against P. acnes and A. calcoaceticus. Nordihydroguaiaretic acid exerted selective antimicrobial activity against A. calcoaceticus and S. hominis and Osmocide-2 exerted selective antimicrobial activity against S. aureus, S. hominis and P. acnes.

Title: Sprayable beautifying composition

USP Application: 7,189,384

Serial Code & No 10/461,565

Date of filing: June 13, 2003

Assignee: Classified Cosmetics, Inc.

Described is a method and apparatus for spraying makeup that masks imperfections in the skin including, but not limited to, freckles, tattoos, birthmarks, scars and post-laser surgery discoloration. In part the application refers to an aerosol applicator but of interest to formulators are descriptions of suitable compositions to be used for such applications.

A common problem with many types of makeup is that it is detrimental to the skin. Many types of makeup have a tendency to clog the skin's pores and facilitate the formation of pimples. Additionally, components of the makeup, as well as makeup removers that are necessary with many non-water-based cosmetics, tend to remove the skin's natural moisturisers and dry the skin. The applicants claim that a personal, sprayable applicator capable of delivering a fine and even film would significantly facilitate the application of makeup.

Title: Oil cleaning sheets for make-up

Application: USP 20070087,040

Serial Code & No **11/557323**

Date of filing: **November 7, 2006**

Assignee: **3M Innovative Properties Co**

Claimed is an oil cleaning sheet for makeup which has excellent oil absorption, allows clear assessment of the oil absorbing effect by becoming transparent upon oil absorption, has an agreeable feel, is resistant to damage during use and does not require inclusion of particulate bodies on the surface.

The oil cleaning sheet is a porous plastic film, with a uniform content of many fine voids provided in the film to cause adsorption of oils from the face. At least one surface of the porous film contains a hydrophilic liquid-absorbing substance.

Prior to wiping skin oils from the skin surface it appears non-transparent due to light dispersion but after oil absorption the oils fill each of the voids, thus either preventing or reducing the degree of light dispersion, and this together with the original transparent nature of the film body allows the oil absorbing effect to be clearly assessed.

The voids may be filled with mineral oils, glycerin, petroleum jelly, low molecular weight polyethylene, polyethylene oxide, polypropylene oxide, soft high molecular weight PEG and mixtures thereof, because these exhibit transparency upon absorption of oil. Mineral oils are preferred among because of their relatively low cost. Additional materials include inorganic and organic pigment, aromatic agents, surfactants, antistatic agents and other ingredients to improve the aesthetics, efficacy and stability of the product.

Title: **Waterless lotion and lotion-treated substrate**

Application: **USP 20070087,041**

Serial Code & No **11/612876**

Date of filing: **December 19, 2006**

Assignee: **Fort James Co.**

Described is a lotion that includes a micro-emulsion composition, which is liquid at room temperature and undergoes a phase change to a semi-solid or solid upon contact with a substrate. The micro-emulsion composition can include a polar emollient, a non-polar emollient, a non-ionic surfactant, and a co-surfactant. The invention also includes a substrate treated with the lotion.

An example lotion comprises 35% polyalkoxy or polyhydroxy emollient of which propylene glycol, glycol, glycerol, sorbitol, diethylene glycol, methylene glycol, polypropylene glycol and polyethylene glycol are preferred; 12.5% aromatic ester, such as C12 - C15 alkyl benzoate; 12.5% myristyl alcohol and 40% PEG-20 methyl glucose sesquistearate, all proportions by weight. This lotion is liquid at room temperature but when applied to a cellulose substrate it undergoes an in-situ phase change from liquid to semi-solid, which is uniformly dispersed on the substrate surface.

The phase change occurs because the continuous phase is absorbed by the cellulose fibres of the substrate, thus upsetting the balance of the micro-emulsion and causing it to pass from a liquid state to a solid state. This

property is important in preventing liquid migration into the substrate or the packaging, and in enhancing the lubricious, soft, and non-greasy feeling of the substrate. The lotion in the substrate is readily transferred to the user's skin by wiping and body heat to provide the benefits to the skin surface.

Both polar and non-polar emollients contribute to the ability of the composition to accommodate a wide range of compatibility with various additives such as preservatives, anti-bacterial agents, natural therapeutic oils and soothing agents, whether they are soluble or not in the polar or non-polar emollient. However, the applicants prefer that the outer phase be polar because in use facial grease or oil goes into the non-polar phase on the wipe and thus may be readily removed.

Additional materials include inorganic and organic pigments, aromatic agents, botanical oils and extracts, antimicrobial compounds, surfactants, antistatic agents and other ingredients to improve the aesthetics, efficacy and stability of the product. The substrate can be any suitable web, including a flushable or non-flushable web of cellulose fibres; a web of synthetic fibrous material; tissue, towel or napkin and may be optionally wet-strengthened.

Title: Temperature regulating gel and article comprising the same

Application: USP 20070088104

Serial Code & No 11/ 546468

Date of filing: October 11, 2006

Assignee: Taiwan textile Research Institute

Claimed is a temperature regulating gel that contains a hydrophilic polymeric substrate and heat-storing material. The hydrophilic polymeric substrate includes a hydrogel and the heat-storing material includes phase change material and plastic crystal. The gel contains 30-90% water by weight and the combination of hydrophilic polymeric substrate and heat-storing material significantly improves the durability of the temperature regulating gel.

The hydrophilic polymeric substrate can be anionic polymer, cationic polymer, amphoteric polymer, neutral polymer, or any combination thereof. Anionic polymer can be hyaluronic acid, alginic acid and its derivatives, pectin, chondroitin sulfate, gum arabic, carrageenan, xanthan gum, cellulose and cellulose derivatives, or any combination thereof. Cationic polymer can be chitosan, polylysine, or any combination thereof. Amphoteric polymer can be collagen, gelatin, fibrin, or any combination thereof. Neutral polymer can be dextran, agarose, starch and starch derivatives, or any combination thereof.

The synthetic hydrogel can be non-cross-linked or cross-linked polymer such as polyethylene glycol and its derivatives, polyacrylates, polyamides, PVP derivatives, cellulose and silicates or any combination thereof. The phase change material can be a hydrocarbon, wax, oil, fatty acids and fatty acid esters; carboxylic acid ester, dibasic esters, clathrate compounds, stearic anhydride, ethylene carbonate, polyol, polymer, metal, or any combination thereof.

The above mentioned plastic crystal can be neopentyl glycol or its derivatives, which can store and dissipate heat at constant temperature by molecular isomerisation through solid-solid phase transformation. The solid-solid phase transformation occurs at 44° C.

When the gel is close to a heat source it absorbs heat and reaches an equilibrium temperature, then the heat-storing material continues absorbing heat from the gel. After the absorbed heat reaches the heat capacity of the heat-storing material, temperature will be increased again and water in the temperature regulating gel will be evaporated, meanwhile, the heat stored in the heat-storing material of the temperature regulating gel will be dissipated while water is evaporating. Therefore, the temperature of the gel will be cooled down so the temperature regulation can be prolonged.

The gel is sandwiched between a top and bottom layer of thin film of fabric, polyurethane, polyethylene, polypropylene, polyester or any combination thereof. The temperature regulating ability and durability is decided by the type and amount of hydrophilic polymeric substrate and heat-storing material, as well as the volume of the temperature regulating gel. Its cosmetic application can be for the relief of muscular pain and for imparting a sense of warmth and comfort to the user. Alternatively the gel can be applied cold to the skin to reduce heat and inflammation.

Title: Method for improving the appearance of skin and topical compositions for practising same

USP Application: 70110778

Serial Code & No 11/647084

Date of filing: December 28, 2006

Assignee: Avon Products Inc.

Claimed are topical compositions to enhance the overall appearance of the skin, such as reducing the appearance of fine lines and wrinkles, using a cosmetic composition incorporating a spherical optical diffuser particle and a cross-linked silicone elastomer.

The inorganic spherical particles are selected from the group consisting of silica, boron nitride, mica, sericite, and mixtures thereof with silica and boron nitride being preferred. They are non-porous and have a low oil-absorbing capacity. Their particle size is from about 5 microns to about 25 microns and they are present at up to 5% by weight of the total composition.

The cross-linked silicone elastomer is selected from the group consisting of: dimethicone crosspolymer; organopolysiloxane; polysilicone-11; and dimethicone/vinyl dimethicone crosspolymer; and mixtures thereof. The most preferred amount of cross-linked silicone elastomer is from 0.15 wt. % to about 3 wt. % of the total weight of the composition.

The applicants claim that other compositions designed to diffuse light and reduce the appearance of fine lines and wrinkles are irregular in shape and size in order to fill those lines and reflect light in all directions. However, such compositions are not pleasant to apply, unlike spherical particles of narrow particle size distribution, which apply smoothly because of their ball bearing effect, but these particles do not fill the lines in the skin nor diffuse light in all directions.

The compositions described claim to overcome these problems because the cross-linked silicone elastomer forms a smooth film over the skin, evening out the lines and wrinkles. The spherical particles then deposit over this film, resulting in optical diffusion sufficient to enhance the appearance of the skin.

Other materials may be included such as retinoids, caffeine, AHAs, ingredients capable of inhibiting 5 alpha-reductase activity like linolenic acid, linoleic acid, finasteride, and mixtures thereof and other ingredients to improve the efficacy, aesthetics and stability of the compositions.

Title: Cosmetic Composition Containing Thermoplastic Microspheres and Skin Beneficial Agents

USP Application: 70071978

Serial Code & No 11/ 534074

Date of filing: September 21, 2006

Assignee: The Estee lauder Co.

Described are thermoplastic hollow microspheres containing one or more skin benefit agents entrapped therein that are useful in the topical delayed release of the active ingredients. The applicants claim that there is continuing need for the development of delivery systems that not only achieve the desired targeting and delivery of an active or other skin benefit material to the proper site on the skin, but also to stabilise the agent while not interfering with its activity. The microspheres are expandable particles having a hollow core and can be formed from a variety of different materials, however particularly preferred are microspheres composed of acrylonitrile/methacrylonitrile/methylmethacrylate polymer, acrylonitrile/methacrylonitrile polymer, and acrylonitrile/vinylidene chloride polymer. These materials are selected so as to impart the microspheres with a desirable absorption capacity for the skin benefit agent, as well as flexibility and resistance to shear stress and are preferably about 5 to about 50 microns in diameter.

The skin benefit agents encompass any number of different materials that perform a desired or beneficial function when applied to any keratinous surface, including not only the skin, but also the hair or nails. Examples of such materials include astringents, antioxidants and free-radical scavengers, anti-acne agents, antimicrobial and antifungal agents anti-aging and anti-wrinkle agents, skin lightening agents, ant-irritants, anti-inflammatory agents, anti-cellulite agents, skin-conditioning agents, emollients, sun protecting agents, exfoliating agents self-tanning agents, vitamins and their derivatives and biologically active peptides such as palmitoyl pentapeptide and argireline. A very useful list of these agents illustrates the patent.

The microspheres may also be used to deliver dyestuffs and pigments to the skin including interference colours and fluorescent or other light emitting materials that can provide benefits in disguising the symptoms of aging.

In a preferred embodiment the microspheres have a polymeric coating on the surface which, depending upon the intended disposition of the agent, can either delay or prevent release of agent directly on to the skin. For example a coating with a wax that melts at body temperature can be employed to form a light physical barrier on the microsphere which melts when rubbed onto the skin, allowing release of the entrapped agent. Where the release of the agent directly onto the skin is not desired, the coating is a polymeric silicone, or a cross-linked polyvinyl alcohol

Title: Cosmetic composition comprising extract from *Mallotus japonicus* for improving skin wrinkles

USP Application: 70053863

Serial Code & No 10/575869

Date of filing: April 16, 2004

Agents: Nixon & Vanderhye, Pc

Claimed are compositions for inhibiting elastase activity, enhancing collagen biosynthesis and improving skin wrinkles, comprising Mallotus japonicus extract as the active ingredient. The applicants write that strong irritation associated with ultraviolet rays and the elevated level of active oxygen species associated with UV damage is responsible for the destruction of skin cells and the degradation of collagen and elastin.

The applicants claim that having made intensive investigations on developing novel active ingredients for improving skin wrinkles, they have discovered that *Mallotus japonicus* extract exerts effective action on elastase activity and collagen biosynthesis and exhibits clinically excellent efficacy in wrinkle improvement.

Mallotus japonicus is a deciduous arborescent mainly growing in the southern areas of Korea and bark extracts have been used as in the treatment of gastric ulcers and gastric complaints. The bark is extracted using various solvents including aqueous-alcohol mixtures or aqueous-glycol mixtures. The extract is purified and used as a solution or a freeze-dried powder. According to the applicants the effective amount of *Mallotus japonicus* extract in a cosmetic composition is most preferably 1-3 wt % based on the total weight of the cosmetic composition. Suitable cosmetic compositions cited by the patent include virtually all forms and types normally to be found as cosmetic products and they may contain other materials to improve product stability, efficacy and aesthetic properties.

Details are given for preparing the extracts and for testing their inhibitory effect on elastase activity and for improving collagen biosynthesis. Test results show that the extract exhibits considerable effect on inhibiting elastase activity and an enhancing effect on collagen biosynthesis, although there were slightly different results depending on the extraction process.

Title: Active ingredient composition comprising vegetable extracts for use in cosmetic products

USP Application: 20060251607

Serial Code & No 10/558441

Date of filing: May 21, 2004

Inventor: Golz-Berner; Karin

Claimed is an active ingredient composition used in cosmetic products for combating free radicals. It is an alcohol-based mixture of vegetable extracts consisting of between 0.1 and 2 % green coffee-bean extract, between 0.1 and 2 % Camellia sinensis leaf extract, between 0.1 and 2% Pongamia pinnata extract and between 0.1 and 2% Angelica archangelica root extract and a residual content of a monovalent C_2-C_5 alcohol to obtain the total of 100%. The free radical protection factor amounts to 1400-2900.times.10^{14} free radicals per mg.

The objective of the inventor was to provide a composition for use in cosmetics, which could be easily prepared without using encapsulating liposomes and which at the same time had a high radical protection factor. The extract mixture can make up 0.1 to 10% by weight, preferably 0.1 to 5% by weight, of a cosmetic, relative to the cosmetic's total weight.

The active preparation can be used in w/o or o/w emulsions, gels or gel emulsions. Its use in perfumes or sprays is claimed to be particularly advantageous. The active preparation can also be combined with other cosmetic auxiliaries and active agents and processed to obtain forms suitable for various applications. Such auxiliaries include water, preservatives, colorants, pigments, thickeners, fragrances, alcohols, polyols, esters, electrolytes, gel-forming agents, polar and non-polar oils, polymers, copolymers, emulsifiers and stabilisers.

Cosmetic active agents include inorganic and organic sunscreens, further radical scavengers, moisturisers, vitamins, enzymes, further plant-based active agents, polymers, melanin, antioxidants and anti-inflammatory agents.

Title: Iridescent cosmetic composition and use thereof

USP Application: 20050226831

Serial Code & No 11/ 095575

Date of filing: April 1, 2005

Assignee: L'Oreal, France

Described is an iridescent composition for topical application comprising at least one water-soluble surfactant and polymer particles in aqueous dispersion. The composition may be used for the treatment, protection and care of the skin, the lips and the hair, and as make-up for the skin and the lips and also as a make-up remover and skin cleansing composition.

According to the applicants, skin care and cleansing compositions are generally in the form of transparent or white products depending on their constituent, ingredients. To make them more attractive, it is possible to colour them however, the colours obtained are often unstable to light. To obtain iridescent coloured effects, it is possible to use pearlescent pigments with a variety of colours however, the iridescent effect obtained is usually fairly weak, and, in addition, these pigments are difficult to disperse and to maintain in suspension, in particular in cleansing compositions which are often quite fluid. The incorporation of such pigments is therefore delicate and the reproducibility of the effect obtained is not certain.

The applicants sought to design products having an iridescent effect without incorporating pearlescent pigments and found that the combination of polymers, in the form of particles in dispersion, with anionic or nonionic surfactants, allows the production of products with an attractive iridescent appearance, without having the technical difficulties of suspension of the particles.

The polymer particles comprise at least 3% by weight of the total composition and have a mean particle size ranging from about 50 to 300 nm. The particles used in the composition preferably consist of ionic polymers and more preferably of anionic polymers that are dispersible in water and preferably exhibit alkaline-swelling. The

preferred polymers possess at least one monomer soluble in alkaline media and the patent identifies many of the preferred materials by trade name and supplier.

The composition described contains at least one water-soluble surfactant selected from nonionic, anionic, zwitterionic and amphoteric water-soluble surfactants and mixtures thereof with an HLB value equal to or greater than 11 and generally comprising from 3% to 30% by weight of the total composition. An example formula comprised 5% acrylates copolymer dispersed in sodium laureth sulfate solution with 3% glycerin and the pH adjusted to 5.85 with sodium hydroxide.

The composition may also contain those cosmetic ingredients necessary to improve the stability, efficacy and aesthetics of the final product, including active ingredients, preservatives and colours.

Title: Oily protective pigment dispersion for protection against UV radiation, a process for preparing it, and a cosmetic composition

USP Application: 20050201954

Serial Code & No 10/ 500756

Date of filing: January 3, 2003

Correspondence: Alston & Bird Llp

Claimed is an oily dispersion of pigments for protection against UV radiation comprising zinc oxide and titanium dioxide added in the form of a powder with a dispersing aid and a single emollient vehicle.

The total concentration of powders in the dispersion is within the range 4% to 50% but preferably about 40% by weight. The concentration of TiO_2 ranges from 2 to 40%, but preferably from 30 to 35% by weight and that of the ZnO ranges from 2 to 25% but preferably from 5 to 10% by weight. This concentration and ratio of pigments is said to provide an SPF of 24.

The particle size of the pigments is between 15 and 100nm and the dispersing vehicle is selected from the group consisting of polyethylene glycol and silicone esters, of which PEG-30 Dipolyhydroxystearate is preferred. The preferred emollient is isocetyl stearoyl stearate, present within the range 45 to 65% by weight. The dispersing vehicle and preferred emollient are mixed together to form a single oily phase and then the TiO2 and ZnO powders are stirred into this.

Each pigment provides protection at a determined wavelength of the ultraviolet (UV) rays of the sun and when used together it is possible to obtain formulations having a high protection factor (SPF) and a wide spectrum, without the need of organic filters.

Title: Sunscreen Safety and Efficacy Enhancement with Manganese Complexes via Urocanate Pathway

USP Application: USP 20070189992

Serial Code & No 11/676284

Date of filing: February 17, 2007

Assignee: Bioderm Research

Claimed is a method of enhancing the safety and efficacy sunscreens with certain heterocyclic base complexes of manganese via urocanate pathway modulation. It leads to a reduction in the formation of topical peroxide including hydrogen peroxide, the reduction of topical inflammation including sunburn, and increased protection from UVA, UVB, and UVC and a reduction of radiation-initiated inflammation. This is achieved by the mixing of a heterocyclic complex of manganese, wherein manganese is covalently bound to at least two oxygen atoms and to at least one nitrogen atom, with an organic sunscreen agent.

The applicants suggest that certain sunscreens cause the formation of hydrogen peroxide upon their exposure to UV in the presence of moisture and this peroxide causes the breakdown of collagen, damages cell function, and suppresses the immune system. They also suggest that urocanic acid, formed from the action of histidine ammonia lyase on l-histidine, which acts as a natural sunscreen agent on skin, is converted into its cis-isomer upon exposure to UV, the latter then catalyzes the formation of various peroxide species via a cascade of urocanate pathway biochemical steps.

However the applicants discovered that certain manganese derivatives of urocanic acid catalyze the decomposition of peroxides on skin and postulate that manganese derivatives of urocanic acid first undergo photo-isomerisation, and the photo-isomerised form subsequently causes the decomposition of peroxides. Although many manganese salts are named in the patent manganese urocanate, manganese urocanate acetate, manganese urocanate glycinate, manganese adenosine triphosphate glycinate and manganese urocanate methanesulfonate appear to be preferred.

The organic sunscreen may be any from a long list of approved sunscreen materials, including ethylhexyl methoxycinnamate, and the manganese compounds may be incorporated into virtually any cosmetic composition designed to protect the skin against UV radiation, including sunscreens, moisturisers and anti-wrinkle products.

Title: Aqueous starch-oil dispersions having improved UV stability and absorbing ability

USP Application: USP 20070140995

Serial Code & No 11/584905

Date of filing: October 23, 2006

Assignee: The USA Secretary of Agriculture

Claimed is a delivery system for UV-protective sunscreen agents, antioxidants, skin care agents, cosmetics and the like comprising feruloylated acylglycerols (FAG) and other cinnamate-modified vegetable oils (CMVO) incorporated into starch-based composites. These composites permit the use of a lower level of CMVO for comparable UV protection than if the CMVO were used alone.

An all natural sunscreen active ingredient has been derived from two natural plant components, ferulic acid and soybean oil.. The enzymatic transesterification between the ethyl ester of ferulic acid and soybean oil produces a mixture of feruloylated acylglycerols (FAG) that comprise at least monoacyl- and diacyl glycerols that are the major constituents of an all natural, soy-based sunscreen

Ferulic acid is a member of the cinnamic acid family that is found esterified in higher plants with hemicelluloses, lignins, and phytosterols and is a common component of the human diet. The feruloyl moiety of the FAG has a strong UVA and UVB absorbance while the acylglycerol portion of the FAG provides water resistance. These characteristics make FAG a suitable, all natural replacement for current commercially used sunscreen active ingredients.

Incorporating FAG into a water-based emulsion has proved difficult but the applicants claim that by co-jet cooking starch with lipophilic materials such as vegetable oils under excess steam conditions the resulting composites can readily contain up to 50% lipophilic material relative to the starch component and are water dispersible over a wide range of dilution. The composites consist of lipid droplets having typical diameters in the 1-10 micron range coated with a thin film of firmly bound starch at the oil-water interface. The water dispersed oil-starch composites can be drum dried to produce oil microencapsulated in starch flakes that are easily reconstituted in water to again form smooth, stable dispersions. These starch-oil composites provide an ideal method to carry lipophilic components into aqueous systems without the need for additional emulsifiers, stabilisers, or surfactants.

Title: Cosmetics

USP Application: USP 20070116654

Serial Code & No 11/638113

Date of filing: December 13, 2006

Assignee: Shiseido Co. Ltd.

Described is a cosmetic that alleviates skin irritation by blending in polypropylene glycol or polybutylene glycol a specific polar oil and an ultraviolet absorbent. The applicants claim that it is possible to prepare a safe sun block cosmetic with superior ultraviolet protection effects because the ultraviolet absorbent is not absorbed through skin.

It is suggested that ultraviolet absorbents have been blended into various cosmetics largely for the purposes of preventing the product from decomposing due to ultraviolet light and for preventing skin damage. However users with sensitive skin sometimes feel irritation from an ultraviolet absorbent in a cosmetic so a method of alleviating this irritation was sought. It is claimed that polypropylene glycol, specific polar oils, and polybutylene glycol have a very high efficacy in terms of suppressing skin absorption of an ultraviolet absorbent and by blending these in a cosmetic, irritation of sensitive skin can be alleviated without affecting the efficacy of the ultraviolet absorbent.

The polar oil is one or more of the following: diethoxyethyl succinate, diethyl sebacate, diisopropyl sebacate, isononyl isononanoate, dioctyl succinate, trioctanoin, pentaerythrityl tetraoctanoate, and cetyl octanoate. The preferred UV absorbents are ethylhexyl methoxycinnamate, BMDBM, ethylhexyl dimethyl PABA and methyl PABA. Preferred polypropylene glycols are those in the range PPG-200 to PPG-4000 and those with an average molecular weight of 500-2,500 have a superior skin absorption suppression effect.

Title: Hair styling cream

USP Application: USP 20070202068

Serial Code & No 11/60719

Date of filing: December 1, 2006

Assignee: The Procter & Gamble Co.

According to the applicants some unique styling products have the ability to form rope-, thread- or fibre-like structures during the drying period. Such products allow for a very advantageous way of applying the product by placing a multitude of threads like a spider web on the hair which then can be worked very easily into the hair.

Claimed are hair styling creams comprising a cross-linked silicone polymer; an alkoxylated compound; an emulsifier; a fatty phase and an aqueous phase. The cream can be transferred into rope-, thread, or fibre-like structures when distributed in the hands and gives a powdery feel after drying and improves hair gloss.

The preferred cross-linked polymer is dimethicone crosspolymer present from about 10% to 25% by weight. The preferred alkoxylated compounds are polyethyleneglycols with a molecular weight between 500 to about 650 g/mol;, representative of these are PEG-10 and PEG-12. A second type of alkoxylated compounds are alkoxylated silicones and especially preferred are fatty acid esters of bis-(polyethylene oxide)-polydimethylsiloxanes and bis-ethoxylated silicone waxes esterified with fatty acids, e.g., Bis-PEG-12 dimethicone beeswax.

The preferred emulsifier is nonionic and selected from the group consisting of ethoxylated fatty alcohols, ethoxylated nonylphenol, alkyl polyglycosides, fatty acid mono- or di-glycerides, ethoxylated hydrogenated castor oil, ethoxylated non-hydrogenated castor oil, fatty acid alkanolamides, and polyethylene glycol esters of fatty acids. Also preferred are triesters of phosphoric acid with ethoxylated fatty alcohols such as, for example, tricetеareth-4 phosphate.

The fatty phase contains oil or wax compounds selected from the group consisting of hydrocarbon compounds, fatty alcohols, fatty acid triglycerides and silicone oils and comprise from about 15% to about 50% by weight of the composition. The aqueous phase comprises at least one mono- or polyhydric alcohol such as ethanol, propanol, glycerol or propylene glycol, in an amount of from about 0.1% to about 8% by weight and the pH is from about 6.5 to about 7.5.

The hair styling cream also contains from about 1% to about 18% by weight of at least one hair fixing polymer and especially preferred are polyvinyl pyrrolidone, polyvinyl caprolactam, and polyvinyl pyrrolidone/vinyl acetate copolymers although vinyl acetate/crotonic acid/vinyl neodecanoate copolymer, methacryloyl ethyl betaine/acrylates copolymer, pyrrolidone carboxylic acid and other polymers are also cited.

The patent includes other ingredients to enhance the stability, aesthetics and efficacy of the compositions. An example formulation follows:-

Title: Process for styling dyed hair and inhibiting its colour loss during shampooing

USP Application: USP 20070107141

Serial Code & No **11/280058**

Date of filing: **November 16, 2005**

Assignee: **L'Oreal, France**

According to the applicants styling gels and mousses are generally applied to wetted hair before brushing or setting it. The polymers contained in these compositions affix themselves not only to the hair fibres but also to dyes present thereon. Consequently, when the dyed hair is shampooed, both the polymers and some of the dyes are washed from the hair. Described is a process for styling dyed hair fibres in a manner which inhibits subsequent colour loss during shampooing

The composition to inhibit colour loss contains at least one polyamine compound having at least two amino groups; at least one anionic silicone; at least one film-forming polymer; and optionally, at least one surfactant The polyamine is either a polyethyleneamine, a polyvinylamine or a chitosan and present between about 5% and 10% by weight. Suggested polyamines include wheat protein, soy protein oat protein, collagen, and keratin protein. Arginine, histidine and hydroxylysine are also named as suitable.

Examples of anionic silicones which may be used include silicone carboxylates, silicone phosphates, silicone sulfates, silicone sulfosuccinates, and silicone sulfonates. The preferred silicone is dimethicone PEG-8 phosphate present in the range from about 5% to 15% by weight.

The preferred film-forming polymer is an acrylate such as acrylic acid/ethyl acrylate/t-butyl acrylamide or octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer or t-butyl acrylate/ethyl acrylate/methacrylic acid. Others are also cited. A surfactant is optional and may be any of those in typical use in shampoo compositions. A conditioning aid is also optional and the final composition may also include additional materials to improve its stability, aesthetics and efficacy. The preferred method of use appears to be by aerosol application.

Title: **SPF scalp sun screen protector**

USP Application: **USP 20060233726**

Serial Code & No **11/ 107269**

Date of filing: **April 18, 2005**

Assignee: **R & G Consultants, GA.**

Claimed is the SPF Scalp Sun Screen Protector, which is described as a product that will protect the scalp and the hair of an individual with fine or thinning hair from the ultra violet rays of the sun. It can also be used to style the hair and contains Biotin for enhancing the health and appearance of the hair.

The base composition may be a typical hair styling composition with the addition of Biotin The active ingredients are shown in the table with the levels by weight used to attain SPF 30 and SPF 45based on the total weight of the composition. NOTE: Homosalate may only be used to a maximum of 10% in the EU.

US Name	SPF 30	SPF 45	INCI Name
Homosalate	8.0%	12.0%	Homosalate
Octinoxate	7.5%	7.5%	Ethylhexyl methoxycinnamate
Oxybenzone	6.0%	6.0%	Benzophenone-3
Octisalate	5.0%	5.0%	Ethylhexyl salicylate
Avobenzone	0	2.0%	Butyl methoxydibenzoylmethane

Intoduction: Human fingernails and toenails are composed of epidermis transparent cells called corneocyte cells, which are produced at the root of the nail. These cells join together to form a solid and continuous surface on the back of the terminal phalanges. Each nail adheres intimately to the underlying support that forms the bed of the nail. The propagation of the corneocyte cells in the root ensures nail growth. The new cells go through a transformation in the solid layers and dry until they form a solid plate. The nail permanently receives continuous additions of cells at the level of its bed, which push the bed beyond the extremity of the phalange. Keratin fibrils present inside the corneocytes, as well as the intercellular cements present, bring rigidity and flexibility to the nails.

Unfortunately, the fragility and vulnerability of the nails are observed in presence of mechanical, thermal and/or chemical attacks. For example, nails which are brittle and friable eventually break split or crack due to mechanical shocks. The nails may also be degraded in the presence of aggressive chemical agents, particularly those present in household products. Nail degradation may also be a secondary effect of the ageing process. Degradation of nails can be very painful, unpleasant and unsightly, and can permit foreign bodies to cause infection of the nails.

Following are three patents aimed at improving the health of nails.

Title: Cosmetic compositions for improving the health of nails

USP Application: USP 20040013622

Serial Code & No 10/ 435022

Date of filing: May 12, 2003

Assignee: Formule Diamancel, Inc.

Claimed is a nail cosmetic composition comprising alga extract and at least two components selected from the group consisting of an extract of aloe vera, an extract of myrrh, hydrolysed keratin and a source of silica. The patent further relates to a nail cosmetic composition comprising mink oil and at least one vegetable oil. The compositions are claimed to prevent nails drying, to prevent friability, to improve their health and to provide an increased growth rate and to increase the flexibility of nails.

The alga is preferably Ulva lactuca, which is also known as sea lettuce, and its extract is preferably present at between 10 and 50% by weight, based on the total weight of the composition. The myrrh extracts used in the

invention can also include myrtle extract. The source of silica is preferably an extract of Equisetum arvense or horsetail.

The composition may be supplied as a two part treatment whereby the algae, aloe vera, myrrh and horsetail extracts with hydrolysed keratin are applied from an aqueous composition followed by massaging with the mink and vegetable oils mixture. Additional ingredients may be included to improve the efficacy, stability and aesthetics of the two compositions. Illustrative formulations follow:

Aqueous Composition:

DL- panthenol	7.1%
Hydroxy propyl trimonium amino acids	20.6
Hydrolyzed keratin	20.6
Horsetail extract	10.3
Aloe vera extract	10.3
Myrrh extract	10.3
Ulva lactuca extract	20.6
DMDM hydantoin	0.2

Oil-based composition

Mink oil	30.0%
Hemp oil	30.0
Avocado oil	30.0
Vitamin E acetate	5.0
Phytantriol	5.0

Title: Coloured nail enamel treatment

USP Application: USP 20060251593

Serial Code & No 11/ 278919

Date of filing: April 6, 2006

Assignee: Work by Docs, Inc.

Onychomycosis is an example of nail disfigurement and there is a need for treating microbial infections of the nail caused by bacteria, moulds, spores, viruses and fungi. Claimed is a system for treating fungal infections in nails comprising an antifungal agent selected from tea tree oil, Gaultheria procumbens, and peppermint oil and combinations thereof; and lactic acid or caprylic acid or combinations thereof in coloured nail enamel.

Tea tree oil (Melaleuca alternifolia) is a natural antimycotic that destroys or prevents the growth of fungi. Gaultheria procumbens, which is commonly known as wintergreen, may have some antimicrobial or antimycotic properties. Peppermint oil is an extract from the peppermint plant Mentha piperita, which may contain from 50% to nearly 85% of menthol.

It is claimed that the combination of tea tree oil, Gaultheria procumbens, and peppermint oil provides treatment of polymicrobial infections and that the combination of tea tree oil, Gaultheria procumbens and peppermint oil with lactic acid and caprylic acid provides a synergistic effect. It is believed that both the lactic acid and caprylic acid assist in penetration of the botanical extracts into and underneath the nail surface, which greatly increases their effectiveness.

It is also claimed that incorporating the active ingredients into nail enamel also synergistically improves the treatment efficacy of the botanicals. Specifically, the nail enamel allows the botanicals to fuse into the nail surface, while providing a durable surface that resists wear and accidental removal during an extended period. An example composition comprises equal amounts of tea tree oil, Gaultheria procumbens, peppermint oil, lactic acid and caprylic acid combined in coloured nail enamel, in a concentration between 3 and 10 wt. % of the combined ingredients.

Title: Nail polish remover

USP Application: USP 20040142830

Serial Code & No 10/753015

Date of filing: January 7, 2004

Inventor: B. A. Tavares; Hartland, WI

Claimed is a nail polish remover formulated from a combination of solvents derived from naturally occurring materials. It is claimed to be highly effective with good skin conditioning properties, is non-toxic and non-flammable. It has a soothing effect on skin and cuticle when applied to finger and toe nails, and is biodegradable.

The claimed composition contains fatty acid esters having from 16 to 18 carbon atoms wherein the content of linoleic acid ester in the source vegetable oil is less than 60%, combined with ethyl lactate derived from corn oil. The C16-C18 fatty acid esters are preferably derived from cotton seed oil, olive oil, peanut oil, maize oil and the

like. Most preferred is a mixture comprising 20-25% palmitic acid ester, 25-35% oleic acid ester and 40-50% linoleic acid ester derived from cottonseed oil. For optimum skin conditioning it is critical that diolefinic fatty acid ester be present in an amount no more than 60% by weight in the vegetable oil source, and that it contains less than 5% of linolenic acid.

The proportion of higher fatty acids present in a preferred nail polish remover formulation is from 55-70% and ethyl lactate is present in an amount from 30-45%. The most preferred composition comprises 60% fatty acid esters derived from cotton seed oil in which about 79.5% by wt are diolefinic and triolefinic fatty acids, and 40% ethyl lactate derived from corn oil.

The nail polish remover may be thickened by mixing with about 5-10% of a naturally occurring wax to form a gel which does not flow when coated onto a polished nail. Suitable naturally occurring waxes include candelilla wax, beeswax, soy wax, carnauba wax, and montan wax. The composition may also include glycerin and may be aesthetically enhanced by the addition of colour and perfume.

Introduction: Peptides are the theme for **t**his selection of patent abstracts. Peptides are increasingly being used in antiageing products as a substitute for Botox-type injections. In 1992, a Canadian dermatologist had the idea of using botulinus toxin for relaxing wrinkles Injected in small doses by means of cutaneous micro-injections into expression wrinkles by plastic surgeons and dermatologists; it relaxes wrinkles as it decontracts the muscles. However such injections are not without potentially harmful side effects so cosmetic alternatives have been sought. Two of the following patents describe the use of peptides for relaxing wrinkles while the third is an interesting use of a polypeptide for the treatment of acne.

Title: Cosmetic compositions

USP Application: USP 20070092462

Serial Code & No 11/257197

Date of filing: October 24, 2005

Assignee: Revlon Consumer Products Co

Claimed is a cosmetic composition, comprising at least one peptide, at least one collagen compound, at least one penetration enhancer, at least one mucopolysaccharides, at least one proteoglycan and a method for plumping lips or skin by applying the composition. The peptide is collagen peptide, the collagen containing compound is atelocollagen, the mucopolysaccharide is chondroitin sulfate and the proteoglycan is hyaluronic acid. Preferably, the ingredient list additionally includes at least one vitamin, and possibly other ingredients such as botanicals, that are capable of existing in the free state in the composition, and interacting with the other ingredients present to associate in situ when applied to the desired keratinous surface.

During the process of aging, subcutaneous fat is lost on the face, which results in the formation of hollows. The facial skin then becomes too large for the face, providing a condition referred to as skin laxity. Skin laxity in turn promotes formation of wrinkles and lines. The applicants claim to provide a method for plumping skin or lips by treating the skin or lips with a cosmetic composition containing ingredients that will plump the skin and ameliorate the appearance of fine lines, wrinkles, and skin laxity.

The ingredients are mixed together in a pre-blend before being added to the main composition. The pre-blend is a commercial liposomal material from Active Concepts trade named Nanomatrix Complex CP3, INCI: phospholipids (&) atelocollagen (&) collagen prepeptide (&) chondroitin sulfate (&) hyaluronic acid (&) tocopherol and it is present at up to 8% in the final composition. The pre-blend may be used in a wide variety of cosmetic compositions, which may be in anhydrous or emulsion form, including but not limited to creams, lotions, gels, and coloured cosmetic compositions such as foundation, lipstick, eye shadow, blush, eyeliner, mascara, nail-enamel, and the like. When the composition is applied to a keratinous surface the active ingredients are released from the liposomes and they associate together, imparting a plumping action to the lips or skin.

Title: Cosmetic composition for skin application suitable for relaxing expression wrinkles

USP Application: 20070148118

Serial Code & No 10/583816

Date of filing: March 8, 2005

Correspondance: Hedman & Costigan, NY

Claimed is a cosmetic composition for skin application suitable for relaxing expression wrinkles that combines a selected active peptide component with a relaxing action on the muscular fibre with a micro-element, which reduces the muscular contraction level by acting directly or indirectly on a muscular fibre component. The active principles of the cosmetic composition of the invention are conveniently carried by liposomes.

The peptide is a pentapeptide which comprises the following amino acids: alanine (ala), arginine (arg), proline (pro), glycine (gly) and has the sequence GLY-PRO-ARG-PRO-ALA in association with the dipepetide, acetyl tyrosine-arginine-1 cetyl ester. The micro-element comprises sodium, potassium and magnesium; their salts or physiologically acceptable derivatives and mixtures thereof.

The composition comprises from 0.001% to 5% weight of sodium and potassium, from 0.001% to 5% by weight of magnesium gluconate, from 0.001% to 5% by weight of acetyl tyrosylarginyl-1 cetyl ester and from 0.001% to 5% of gly-pro-arg-pro-ala-NH2 pentapeptide in a cosmetically acceptable vehicle.

A suitable aqueous solution rich in Na^+ salts and K^+ salts is obtained by aqueous extraction from *Pimpinella asinum* fruit using water as solvent and subsequent enzymatic hydrolysis. The extract represents a natural source of sodium-potassium which is particularly suitable for producing a cosmetic composition for fighting expression wrinkles. Magnesium is provided in the form of magnesium gluconate.

The cosmetic compositions or preparations for obstructing and reducing cutaneous micro-contractions with the final effect of relaxing expression wrinkles are provided in any suitable form for skin application, such as creams, emulsions, lotions, gels, oils, pastes, ointments and sprays. To extend their activity and provide a better performance through the skin, the active principles can be enclosed in a carrier comprising liposomes which gradually release them into the action site. The use of liposomes has the purpose of facilitating the penetration of the active principles as far as the action site.

Title: Anti-acne composition

USP Application: USP 20070207112

Serial Code & No 11/634368

Date of filing: December 5, 2006

Assignee: Grant Industries

Described is a composition for the topical treatment of acne, comprising a synthetic vegetable-derived anti-microbial short chain peptide, salicylic acid and a non-comedogenic, hydrated film-forming copolymer in an aqueous delivery vehicle.

The oligopeptide is based on the amino acids, phenylalanine, alanine, leucine and lysine and is present at about 0.01% to 0.2% by weigh of the total composition. The salicylic acid may be present as one of its alkali metal salts, preferably sodium salicylate, and represents between 0.5% and 2% of the composition and the copolymer is a non-comedogenic, hydrated film-forming copolymer formed by polymerisation of dimethylacrylamide, acrylic acid, polystyrene, and methacrylate monomers, present at up to 2%.

The combination of the preferred peptide sequence and sodium salicylate is synergistic towards killing P. Acne bacteria. Salicylic acid is preferably at or about 0.5% by weight, which is the minimum quantity defined as acceptable for OTC acne treatments containing salicylic acid. The delivery vehicle can be deionised water with a USP acceptable preservative system, or a mixture of water and lower alkyl alcohol, preferably ethyl or isopropyl alcohol. In one aspect, the alcohol level is substantially high enough to be self-preserving at about15% by weight, but otherwise limited in concentration to avoid drying the skin. In other aspects, the alcohol level is less than 15% and a USP preservative is used in the system.

The cosmetic vehicle may be an emulsion that contains other beneficial anti-acne ingredients such as natural products, botanical extracts, esters of retinoic acid and oil-absorbing compounds that improve the appearance and health of facial skin. Preferred botanical extracts with mild skin lightening and anti-microbial action include rice-bran extract, manuka honey and boswellia extract. Where the delivery vehicle is an emulsion, the oil-phase contains 1% to about 20% by weight of an oil-absorbing silicone-elastomer crosspolymer gel and up to about 0.5% by weight of a retinoic acid ester.

The preferred polymer is InvisaSkin, available from Grant Industries, which is a hydrated dimethylacrylamide/acrylic acid/polystyrene/methacrylate copolymer mixed with Oryza sativa (Rice) bran extract. This polymer was originally prepared as a non-comedogenic surgical aid for adhering skin and mucous membranes and has beneficial adhesion and hydration properties which are advantageous in acne treatments.

Dermabrasion and skin peeling are an important part of Spa treatments. Three patents illustrate the two different methods.

Title: Methods and compositions for treating skin lines and wrinkles and improving skin quality

USP Application: USP 20070065515

Serial Code & No 11/534174

Date of filing: **September 21, 2006**

Inventor: **Key; Douglas J**

Claimed are methods and compositions for improving skin quality by applying a solution of about 20-30% pre-wetting agent, such as hyaluronic acid, to a skin surface with concurrent dermabrasion treatment. These methods lead to significant improvement in the treatment of skin aging.

The use of hyaluronic acid injections for soft tissue filling has become extremely popular, but it can be painful and there are possible side effects including bruising, redness, pain, itching, tenderness and swelling at the site of injection. The inventor of the composition and method described in this patent claims to have overcome the need for hyaluronic injections by the use of dermabrasion techniques. It is claimed that improvement of skin quality can be obtained by applying high concentrations of one or more agents for pre-wetting the skin in conjunction with dermabrasion. The skin can be pre-wetted with a solution or gel of any compound of interest, including but not limited to collagen, chondroitin sulfate, or hyaluronic acid, and treated with dermabrasion.

In one example, the skin is saturated with a solution of a therapeutic amount of an agent immediately prior to or concurrent with dermabrasion. The pre-wetting agent can be in the form of a lotion, gel, cream, aqueous solution, or in an ointment or oil base, or in a sprayable liquid form. This method leads to dramatic enhancement in reducing roughness, dryness, scaliness, fine lines and wrinkles, scarring and age spots, and results in an improvement in skin texture, brightness and radiance.

The composition includes an abrasive agent that is capable of abrading a skin surface, for example magnesium oxide crystals, aluminium oxide crystals, sodium chloride crystals, sodium bicarbonate or any biocompatible or inert particulate material. A combination of sodium chloride crystals and sodium bicarbonate powder provides an effective skin-abrading system for dermabrasion while minimising abrasive irritation and harshness likely to cause skin damage from improper use.

The pre-wetting composition can be formulated separately from the abrasive composition or the two compositions can be formulated into one for simultaneous application of the pre-wetting agent and abrasive agent. The wetting agent is preferably present at about 25% to 30% by weight and the abrasive agent at 10% to 25%. The final composition may contain other ingredients to improve the efficacy, stability and aesthetic qualities of the composition.

Title: **Dermabrasion composition**

USP Application: **20070031355**

Serial Code & No **11/454931**

Date of filing: **June 19, 2006**

Assignee: **L'Oreal**

Described is a dermabrasion composition containing, in a cosmetically acceptable medium, aluminium oxide particles and pumice powder, and optionally a nonionic surfactant. The exfoliant composition can effectively

attenuate the signs of ageing of the skin in the areas of the neckline and the hands and the arms, without causing any sensation of discomfort.

The aluminium oxide particles have a mean size ranging from 100 to180 microns and are present at between 10% and 40% by weight relative to the total weight of the composition. The pumice powder particles have a mean particle size of less than 200 .microns and represent from 0.5% to 10% of the total weight and polyethylene powder of particle size 150 to 250 micron may be present at 1% to 10% by weight relative to the total weight of the composition.

Advantageously, the composition may comprise one or more nonionic surfactants, for example an ethoxylated fatty acid ester or fatty acid esters of sugars, and mixtures thereof. The surfactants allow the composition to be rinsed off efficiently after micro-dermabrasion of the skin surface. Suitable surfactants are listed as PEG-8 stearate, PEG-40 stearate and PEG-8 behenate and one or more of these may be present at about 4%. Suitable sugar esters are shown as sucrose stearate, sucrose distearate and sucrose tristearate and these may be present at between 2 and 6%. The final composition is preferably an o/w emulsion and may contain oils and waxes, rheology modifiers, preservatives and other additives to improve the efficacy, stability and aesthetic qualities of the composition.

Title: Methods for peeling skin

USP Application: 20070253988

Serial Code & No 11/411821

Date of filing: April 27, 2006

Assignee: L'Oreal

Skin peeling methods are generally known for improving the surface appearance of skin, in particular for attenuating pigmentation defects such as actinic lentigo or acne or varicella marks, and for smoothing irregularities of skin texture, in particular wrinkles and fine lines, by causing a targeted exfoliation of the epidermis and the top layers of the dermis.

Claimed is a two-part peeling composition. The first part preferably contains about 10% to about 40% of urea and 10% to 40% of an N-substituted aminosulfonic acid compound such as hydroxyethylpiperazine ethane sulfonic acid. It may also contain up to 55% by weight of a polyol such as propylene glycol and water and the pH is adjusted to be 6.9 to 7.1.

The second part accelerates the replacement or replenishment of epidermis and the peeling agent is selected from the group consisting of alpha-hydroxy acid compounds, beta-hydroxy acid compounds, nicotinic acid compounds, and mixtures thereof. Particularly preferred are glycolic acid and salicylic acid. Preferred nicotinic acid compounds include nicotinic acid and related compounds and are used in conjunction with a vitamin C compound. Most preferably the total amount of peeling agent present is from about 20% to about 50% by weight, relative to the total weight of the composition.

The peeling composition further comprises a cosmetically and dermatologically acceptable carrier in which peeling agents are soluble at high concentrations. Examples of preferred solvents include water, polyols such as

propylene glycol, polyethylene glycol and glycerin, and aqueous alcohol. Highly preferred solvents include ethanol and isopropanol. Mixtures containing one or more of these solvents or other solvents are preferably used.

The pre-peeling composition is first applied to the skin followed by the peeling composition, which is left for up to 15 minutes before being rinsed away. In preferred embodiments, the peeling composition is allowed to air dry over a relatively short period of time. Drying may be promoted by directing a gentle stream of warm air onto the treated area and a single uniform application of the composition to the skin to be treated and its surroundings is generally sufficient.

Title: Composition for the cosmetic treatment of age-related dermatological symptoms

USP Application: 20070292527

Serial Code & No 10/577976

Date of filing: November 3, 2004

Assignee: Daimlerchrysler AG

Claimed is a composition containing an extract of a deep sea fish; an extract of rooibos (*aspalathus linearis*) and optionally, an extract of bearberry (*arctostaphylos uva-ursi*) as active components. The composition may also contain a horsetail extract (*equisetum arvense)* a shellfish extract and diacetyl boldine.

The preparation may be made suitable for oral administration as a tablet or lozenge; as a cosmetic lotion or cream for topical application or as a hair care preparation for cosmetic treatment of the scalp. It is claimed that the composition is effective for promoting collagen synthesis in the skin, and is useful for cosmetic treatment of age-related dermatological symptoms such as wrinkled and aged skin and also for cosmetic treatment of hair loss.

The preferred deep sea fish extract is from sharks available in powder form with a protein content of about 35% to 45%. For oral administration the daily dose is about 600 to 800 mg of extract and if applied topically the preferred level is about 1%. The extract of rooibos originates from the South African plant *Aspalathus Linearis* and is preferably used in powder form. The daily dose for oral administration is about 20 mg and for twice-daily topical application the preferred level is between 5% and 8%.

The daily dose for bearberry extract is preferably at between 14mg and 18mg when taken in tablet form. The tablets also contain suitable ancillary agents and fillers as well as coating agents. The daily doses may be divided between more than one tablet and the tablets may also contain powdered horsetail and shell fish extract and may also contain diacetyl boldine. Other active ingredients that may be added to either the tablet or the compositions for topical application include vitamin A, vitamin C, zinc, D-alpha-tocopherol, betaine, citric acid, sodium ascorbyl phosphate, alpha-lipoic acid and dimethyl sulfone.

An example of a composition in tablet form is given as 800.0 g extract of shark, 22.0 g extract of rooibos and 16.0 g extract of bearberry thoroughly mixed with 210.0 g microcrystalline cellulose and 14.0 g silicon dioxide compressed into tablets having a weight of approximately 531 mg each. The composition of a lotion is given as 96% ethanol, 5% glycerol, 5% PEG-20-stearate, 5% extract of shark fish, 1% extract of rooibos 10% extract of shell fish with 1% Dimethylaminopropyl lanolin acid amide, 0.8% Methylparaben and water to 100 wt %.

Title: Hot flavour and skin sensation composition

USP Application: 20080000614

Serial Code & No 11/853656

Date of filing: September 11, 2007

Correspondence: Winston & Strawn LLP

Described is a flavour and skin sensation composition providing a hot or warming sensation upon consumption or when applied topically to skin. The composition comprises a hot, warming component, a cooling component and a bitter component.

The hot component is an ingredient, which provides a hot, warming sensation mediated by the trigeminal nerve when brought into contact with the oral cavity or the skin. The hot component is selected from the group consisting of piperine, pelargonyl vanillyl amide, vanillyl butyl amide, vanillin butyl ether, eugenol, gingerol, polygodial, shogoal, galangal acetate, capsaicin and capsaicin analogues and mixtures comprising two or more of these.

The cooling component is selected from the group consisting of menthol, menthyl succinate, menthyl lactate and various similar compounds. The bitter component is selected from the group consisting of bitter triterpenes, glucosides of monoterpenes, sesquiterpenic lactones, humulone, lupulone, flavonones, quinines, and mixtures comprising two or more of these. The compositions may also contain an acid component selected from the group consisting of citric acid, acetic acid, succinic acid, pyruvic acid, lactic acid, propionic acid, malonic acid and oxalic acid.

The components are preferably dissolved in a solvent and other ingredients are added to obtain the total effect desired. These may include a volatile solvent to act as lift enhancer and the compositions are used as flavour enhancers or to confer a warming sensation to the skin. Its use in oral care products such as toothpaste, tooth-gels and mouthwash is also suggested and the inventors claim that the combination of hot and cold sensations is a unique experience.

Title: Skin rejuvenating supplement

USP Application: 20070092578

Serial Code & No 11/ 258182

Date of filing: October 26, 2005

Correspondence: Armstrong, Kratz, Quintos, Hanson & Brooks, Llp

The production of free radicals from oxygen in the presence of ultraviolet light is linked to degradation of collagen and other structural components of the skin. There may also be DNA mutation and structural changes which impair the skin's ability to heal itself. Described is a formulation designed for oral intake that includes conchiolin protein, vitamin D and an antioxidant. It is claimed to be suitable for treating age spots, darkening of

the skin and dry skin. It also claims to be suitable for treating calcium/amino acid deficiencies, osteoporosis and for improving eyesight.

In China, pearl powder is used in its raw form as a skin whitener and rejuvenator, as an anti-aging agent and as an anti-inflammatory agent. Conchiolin protein is the protein that gives pearl the rainbow-like iridescent glow and is found in pearls produced by bivalve shellfish such as abalone and pearl oysters. It is woven into the pearl's calcium and to extract the protein from a pearl it needs to be dissolved first with hydrochloric acid. However, for internal use, conchiolin protein or its hydrolysate need not be extracted and purified but can be used in powder form that can be absorbed readily by the bodies internal organs.

Vitamin D aides the digestion function of the human body and in combination with pearl powder, Vitamin D aids the body in digesting and absorbing conchiolin protein and calcium.

Antioxidants are effective in preventing or slowing down oxidation by singlet oxygen and various forms of radicals. Antioxidants include vitamins C and E, vitamin A, selenium, lycopene, and carotenoids. The preferred antioxidant for the composition described is astaxanthin, which is the main carotenoid pigment found in aquatic animals and algae and is used because of its properties as a strong antioxidant and an effective compound against UV radiation on the skin.

Typically, the formulation will be designed for administration twice daily and the amounts of components in a dosage unit would be 50 to 150 mg of pearl powder; 0.3 to 0.63 .mu.g of vitamin D and 0.75 to 2.0 mg of astaxanthin.

Title: Therapeutic soap product with UV protection

USP Application: 20070071698

Serial Code & No 11/234097

Date of filing: September 26, 2005

Inventor: Doss; Jamie Collins

Claimed is a cleansing composition that imparts sun protection for the skin through normal daily use during bathing, washing, or cleaning of the body or face. It claims a unique combination of ingredients that provide therapeutic and restorative properties for the skin. The ingredients include microfine titanium dioxide and zinc oxide, for providing protection against UV rays, chlorophyll for promoting wound healing, and inhibiting bacterial growth and citric acid for providing a mild exfoliant to help remove dead skin cells.

The composition also includes balm of Gilead for improving and preventing skin disorders; aloe vera prepared from whole leaf aloe barbadensis for restoring damaged skin tissues and cells and one or more vitamins, preferably an all-in-one powder multivitamin is used. Olive oil is present for moisturising and keeping skin hydrated and one or more minerals and natural amino acids are also included. The balm of Gilead is selected from the group consisting of Populus Candicans, P. Nigera, and P. Balsamifera, but Populus Candicans is preferred.

The cleansing composition is preferably in bar soap form. Users will generally wash with the soap bar and rinse off with water. The soap base may comprise approximately 15-20% pure glycerin, to which may be added approximately 7-13% additional lipids. Vegetable or plant derived soap bases, including olive oil or coconut oil, are used. Approximately 0.5 % by weight of the soap is zinc oxide, and approximately 0.2 % by weight of the soap is titanium dioxide. It is claimed that these quantities provide sufficient protection against UVA and UVB radiation, even after the soap is rinsed from the skin.

Title: Photoprotectant composition for preventing sunburn and sun damage to the skin

USP Application: 20070292527

Serial Code & No 11/ 776874

Date of filing: July 12, 2007

Inventors: Edwards Angell Palmer & Dodge Llp

Described is a photo-protection composition comprising at least one carotenoid and an extract of polypodium leucotomos plus the carotenoids astaxanthin and lycopene. The composition may be formulated as a pharmaceutical for oral administration in the form of a tablet or soft gelatine capsule and include superoxide dismutase and N-acetyl cysteine.

Astaxanthin is believed to protect cells against oxidation by scavenging free radicals and has been shown to protect the skin from the damaging effects of ultraviolet radiation. It can be obtained from marine algae or can be synthetically produced. Astaxanthin from naturally-occurring sources is preferred in this invention. Lycopene is a naturally-occurring carotenoid with powerful antioxidant properties. It can be obtained from tomato and has been shown to be an efficient free radical scavenger and to prevent UV light-induced skin lesions.

The combination of astaxanthin and lycopene is adjusted in order to deliver a daily amount of 1-6 mg astaxanthin and 1-50 mg lycopene per day. Polypodium leucotomos extract helps maintain the skin's tolerance to the sun, protects skin elastin, protects the epidermal immune system by preserving the Langerhans cells and protects DNA by inhibiting the formation of thymine dimers. The daily dose from the composition is between 1 mg-300 mg per day.

It is claimed that the combination of astaxanthin with lycopene and Polypodium extract provides a broader spectrum of antioxidant protection than either can provide alone. This multi-action approach provides protection both from the direct damage caused by UV exposure as well protecting the body's immune response to that damage. The composition thus provides dual-acting complimentary ingredients to provide both broad-spectrum antioxidant and protection of the immune system from UV damage.

The use of a similar composition for topical application is also claimed, in which event the composition would benefit from the addition of physical or chemical sunscreen agents or a combination of both.

Title: Cosmetic and dermatological preparations containing transparent surface-coated titanium dioxide particles

USP Application: **20080020054**

Serial Code & No **11/ 817619**

Date of filing: **March 3, 2006**

Assignee: **BASF Ag**

The application states that metal oxides such as titanium dioxide (TiO_2) or zinc oxide (ZnO) are widespread in sunscreen compositions. Their effect is based on reflection, scattering and absorption of harmful UV radiation and is essentially dependent on the primary particle size of the metal oxides. Microfine TiO_2 is widely used in cosmetic formulations since it is chemically stable and toxicologically safe and leads neither to skin irritations nor to sensitisation. However a disadvantage of metal oxides is their photocatalytic activity, which triggers reactions, which can lead to the formation of reactive hydroxyl radicals.

Another disadvantage of metal oxides is the tendency of the particles to agglomerate. As particle size increases their effectiveness as UV screens decreases and they also become more visible as whitening on the skin. It is the stated object of the patent to provide cosmetic and dermatological photo-protective preparations using TiO_2 particles with low photo-catalytic activity, that are transparent in the visible region and are easy to incorporate into cosmetic dispersions In addition the particles should not undergo irreversible aggregation so that a complex dispersion process can be avoided.

This objective has been achieved, state the applicants, by the use of surface-coated TiO_2 particles with a crystallite size of from 10 to 20 nm and a specific surface area of from 90 to 110 m^2/g. The surface coating of the TiO_2 particles comprises a multi-coating of aluminium oxide and methicone or a copolymer of methicone and dimethicone or a copolymer of methicone and dimethicone with silicon dioxide.

The particularly preferred composition of the TiO_2 particles is a TiO_2 content of 73 to 83% by weight; a silicon dioxide content of 6.5 to 8.5% by weight and an aluminium oxide content of 2.5 to 4.5% by weight. In addition the methicone or methicone/dimethicone copolymer content is preferably 4.5 to 6.5% by weight. Rutile TiO_2 is used and the coated particles may comprise up to 25% by weight of the total composition.

The patent describes numerous ingredients that may form the compositions that incorporate the coated TiO_2 particles and the patent is illustrated with some basic formulations.

Title: **Personal care compositions comprising pear seed extract**

USP Application: **20080075798**

Serial Code & No **11/897083**

Date of filing: **August 29, 2007**

Assignee: **The Procter & Gamble Co.**

Claimed are personal care compositions containing Pyrus communis (pear) seed extract that can be applied topically, ingested orally, injected, or used as part of a regimen.

The patent defines many of the meanings of expressions used in this and other patents. Of note is that the term "safe and effective amount" means an amount of a compound or composition sufficient to significantly induce a

positive benefit, but low enough to avoid serious side effects. The positive benefit as applied to skin, nails and hair may mean to improve the appearance or to improve its feel, or both.

The personal care compositions described can be in any suitable form and examples cover the whole spectrum of cosmetic products for topical application. Examples of oral personal care compositions included tablets, pills, capsules, drinks, beverages, powders, vitamins, supplements, health bars, candies, chews, and drops. Both product types may be used in conjunction as part of a personal care regimen and this may also include injecting the active composition directly under the skin.

Various active compositions are listed: in addition to pear seed extract; one in particular comprises hydrolysed soy protein and hydrolysed wheat protein combined with peptide GHK. In another example, the active component comprises a combination of pear seed extract with xylityl glucoside, anhydroxylitol and xylitol. In another embodiment, the active component comprises a combination of pear seed extract, capryloyl glycine, sarcosine, and Cinnamomum zeylanicum bark extract.

Additional skin care actives may be selected from the group consisting of sugar amines, retinoids, peptides, dialkanoyl hydroxyproline, hexamidine, salicylic acid, phytosterol, sunscreen actives, niacinamide, water soluble vitamins, oil-soluble vitamins, their derivatives, their precursors, and combinations thereof.

The patent is of interest because it includes the definitions and properties of a great number of active compounds of use in cosmetic applications. It also includes test protocols for determining the efficacy of some of the products described.

Title: Additives for cosmetic products and the like

USP Application: 20080070993

Serial Code & No 11/ 899608

Date of filing: September 6, 2007

Assignee: Bodner & O'Rourke, NY

Described are additives for cosmetic based on chitosan, hyaluronic acid and polyyglutamic acid.

Chitosan is a copolymer of N-acetylglucosamine and glucosamine; it is a biocompatible and biodegradable linear polyamine. Chitosan compounds are prepared by chemical modification of chitosan linear polyamine with natural polycarboxylic acids. This core may be hydrophilic, hydrophobic or amphiphilic depending on the ratio of cross-linking and the character and functional groups of the carboxylic acid. Functional groups can be vinyl groups polymerised by chemical or by UV light.

Hyaluronic acid (HA) is a linear polysaccharide of alternating disaccharide units of D-glucuronic acid and N-acetyl-D-glucosamine. It is a natural polysaccharide found in a vitreous body, extracellular matrix, connective tissues, synovial fluid and organs. The molecular weight of the natural biopolymer is in the range of 10 kDa and 6000 kDa. The role of HA is important in the structure and organisation of the extracellular matrix, the transport of nutrients, in cell adhesion and regulation of inflammation.

The patent described nanoparticles based on HA by covalently cross-linking via carboxylic groups of the HA chain with a diamino compound in aqueous media at room temperature. The condensation reaction of amino groups and pendant carboxylic groups of HA was performed by using water soluble carbodiimide. The prepared nanosystems form clear solutions in aqueous media and particle size depends on the ratio of cross-linking and the molecular weight of HA.

The third group of cosmetic actives described were hydrogels made from poly-gamma-glutamic acid (PGA) compounds. The PGA first reacts with a diamino or polyamine compound forming partially cross-linked nanoparticles. The surface of the PGA compound so formed is provided with a plurality of vinyl groups, which then undergo radical polymerisation under UV radiation to form a hydrogel.

The nanoparticles of chitosan and hyaluronic acid may be loaded with a wide variety of active ingredients and the use of these additives and PGA hydrogels in a wide variety of cosmetic applications is described.

Title: Use of an Acmella Oleracea Extract for the Botox-Like Effect Thereof in an Anti-Wrinkle Cosmetic Composition

USP Application: **20080069912**

Serial Code & No **11/ 583931**

Date of filing: **January 4, 2005**

Assignee: **Gattefosse SAS**

Claimed is a method for removing wrinkles by applying an anti-wrinkle composition containing spilanthol from Acmella oleracea flower buds to epidermal tissue.

Acmella oleracea is a small annual plant from South America measuring 40 to 60 cm in height. It flowers year-round, producing many yellow flowers and is easy to propagate. The inventors discovered that spilanthol, in the form of an Acmella oleracea extract, was able to effectively inhibit contractile activity in subcutaneous face muscles.

Spilanthes oleracea extract has previously been patented as an active ingredient to promote hair growth; for use as a bubble bath for its refreshing effect on the skin; for use in a bath preparation with sedative and firming properties; as a deodorant agent; for the feeling of freshness provided by spilanthol; for its inhibiting effect on the formation of melanin with anti-ageing indications and for its local anaesthetic effect.

Extraction is performed from the whole plant or a part of the plant, notably from flower buds. It is ground in a polar solvent usable in topical cosmetic applications, either aqueous, alcoholic or glycolic media of which ethanol is one of the preferred solvents.

The final compositions can contain the usual additives used in cosmetic and dermatological compositions, such as fats, emulsifiers and co-emulsifiers, hydrophilic or lipophilic gelling agents, hydrophilic or lipophilic active ingredients, preservatives, antioxidants, solvents, fragrances, fillers, hydrophilic and lipophilic filters, dyestuffs, neutralisers, penetrating agents and polymers.

The anti-wrinkle effect of botulinum toxin lies in its ability to inhibit subcutaneous muscle contractions considered responsible for expression lines. Acmella oleracea flower buds extract inhibits contractile activity and has the same anti-wrinkle potential as botulinum toxin. The patent describes various tests to demonstrate this effect and has representative formulations.

Title: Composition Having a Healthy Appearance Effect

USP Application: 20080081057

Serial Code & No 11/861326

Date of filing: September 26, 2007

Assignee: L'Oreal

It is suggested that Caucasian skin with a mild tan has a healthy appearance but natural tanning is not always desirable as it requires prolonged exposure to UV radiation. Claimed is a composition containing at least one encapsulated pigment and at least one skin colouring agent chosen from self-tanning agents and melanogenisis activators and their mixtures, which gives an immediate healthy appearance effect which lasts over time.

The encapsulated pigment may be organic, inorganic, or interference type and may be surface-treated. The encapsulating material may be chosen from jojoba esters, polymers or copolymers of acrylic acid and methacrylic acid and cellulose derivatives, and mixtures thereof. They have to be resistant to the other materials present in the composition but flexible enough to burst under shearing when applied to the skin in order to deliver the colour desired.

The self-tanning agent is dihydroxyacetone (DHA) or erythrulose or mixtures thereof and may be present at up to 15% by weight relative to that of the total composition. DHA remains the most effective means of imparting an artificial tan to the skin but it takes time to develop. Pigments may be added to give an immediate effect but they destabilise DHA. It is claimed that by encapsulating the pigments the DHA is not destabilised and the pigments are released on application to impart the desired shade to the skin

Melanogenisis activators are compounds that stimulate the synthesis of melanin by stimulating activity or expression of tyrosinase, or the transfer of melanosomes from melanocytes to keratinocytes by stimulation of the PAR-2 receptors. Numerous examples are listed in the patent but Sanguisorba officinalis extract and Chrysanthemum sinensis leaf extract are favoured.

The preferred composition is in the form of an emulsion and will contain oils and waxes to improve the delivery vehicle and ingredients to enhance the efficacy, stability and aesthetic properties of the final product.

Title: Cosmetic Use of Piperidine Derivatives

USP Application: 20080090866

Serial Code & No 11/629196

Date of filing: July 16, 2007

Assignee: L'Oreal

The introduction states that hitherto, wrinkles and fine lines were treated using cosmetic products containing active agents acting on the skin, for example by improving its cell renewal or alternatively by promoting the synthesis, or by preventing the degradation of the elastic fibres thereof of which skin tissue is composed. These treatments act on the wrinkles and fine lines caused by chronological or intrinsic ageing but have no effect on expression wrinkles which require an intervention on the muscular or dermal contractile components of wrinkles. Specifically, expression wrinkles are produced by the strain exerted on the skin by the skin muscles that allow facial expressions.

The commonly used materials for acting on expression wrinkles are botulinum toxin, antagonists of the receptors associated with the calcium channels, such as verapamil and manganese and its salts, and agonists of the receptors associated with the chlorine channels including glycine and certain extracts of Iris pallida and certain amine compounds. However, there is still a need for other effective compounds for smoothing or fading expression wrinkles and the applicant is claiming the use of piperidine derivatives to satisfy this need.

The patent describes the synthesis of various piperidine compounds including 1,4-bis(3-phenylpropyl)-piperidine, 1-[4-(3-phenylpropyl)piperidin-1-yl]octan-3-one and 6-{2-[4-(3-phenylpropyl)-piperidin-1-yl]ethyl}undecan-6-ol. Test protocols are described to evaluate the effects of these materials on muscle contractions and an example formula that incorporates 0.10% 1,4-bis(3-phenylpropyl)-piperidine is given.

Preferred compositions containing the piperidine derivatives are emulsions or gels and they may contain other active materials to enhance the effectiveness of the composition. In particular retinyl palmitate, ascorbic acid and its derivatives, tocopherol and its derivatives, nicotinic acid and its precursors and Ubiquinone and glutathione and its precursors are listed. Also mentioned are ceramides; hydroxy acids such as salicylic acid and 5-n-octanoylsalicylic acid; resveratrol; oligopeptides and pseudodipeptides and manganese and magnesium gluconates.

Title: Keratin-Based Powders and Hydrogel for Pharmaceutical Applications

USP Application: 20080089930

Serial Code & No 11/ 945614

Date of filing: November 27, 2007

Assignee: Keraplast Technologies, Ltd.

Although primarily directed at pharmaceutical applications there are interesting cosmetic possibilities disclosed in this patent. Claimed is a keratin solid fibre produced by partially oxidizing hair keratin disulfide bonds to sulphonic acid residues and reacting these with a cation. The neutralised suspension can be filtered, washed, and dried, leaving keratin solid which can be shredded into fibres and further ground into powder or addition of water to the solid produces a hydrogel.

The fibres or powder may absorb between 5 to 20 times its weight in water to form a hydrogel. The solid and the hydrogel formed from the solid are suggested for various applications such as use as an absorbent with skin healing properties when incorporated into diapers, feminine hygiene products, wound dressings and as a moisture containing agent in cosmetics for use on the skin.

The keratin hydrogel is also believed to be suitable for use as an implant filler, for example, used to fill a breast implant, or to augment soft tissue for cosmetic, reconstructive or aesthetic reasons. The performance of cosmetics which reduce the greasy appearance of skin can be enhanced through the use of moisture absorbent keratin material as an additive. Human hair is a preferred source of keratin because of its ready availability and because it is expected to be less prone to cause undesirable immune or allergic reactions in a human. In addition to water absorbency, peptides are released from the keratin hydrogel that may have beneficial effects on the skin. This property offers certain benefits in embodiments such as wound dressings, as well as cosmetics, gels or lotions for application to the skin.

A common problem in cosmetic compositions has been the effective delivery of actives to the skin. The following three patents describe ways of using cosmetically acceptable films to improve delivery of active ingredients.

Title: Delivery System for Cosmetic and Skincare Products

USP Application: 20080069864

Serial Code & No 11/865175

Date of filing: October 1, 2007

Assignee: Acupac Packaging, Inc.

Described are cosmetic and skin care products dispersed or encapsulated within a polymer matrix in the form of a thin film, which releases its contents when applied to the user's skin.

A wide range of possible water-soluble polymers are cited including many cellulose derivatives but most preferred are mixtures of pullulan and pectin. The skin care product is dispersed throughout the polymer matrix before drying the mixture into a thin sheet. The sheet is applied to skin at the site of use and kept in contact for a period of time sufficient for it to dissolve in the moisture present on the user’s skin. Alternatively the polymer is a low temperature-melt polymer and the heat on the user’s skin melts the polymer and releases the cosmetic or skin care product.

The concept appears suitable for applying skin treatments to various parts of the face and body, including the eyes, lips, hands, and face. It appears particularly suitable for the application of water-soluble actives and examples given include allantoin, vitamins, minerals, amino acids, anti-oxidants, sunscreen agents and skin peeling compounds and extracts such as Aloe barbadensis leaf juice and Panex ginseng extract. It may also be used for the application of make-up.

The films may be loaded with up to 70% by weight of the cosmetic product although the active content is generally below 20%. Higher loadings may be achieved by having several layers of film to be applied together and it is possible to have different actives in each layer.

Title: Solid Cosmetic and Therapeutic Compositions Applicable to the Human Skin and Gellable on Contact with Water

USP Application: 20080085291

Serial Code & No 11/ 839242

Date of filing: August 15, 2007

Assignee: Biofarmitalia SpA

Claimed are solid compositions applicable to the human skin that form gels on contact with water.

The compositions contain between 6.0% and 40% of hyaluronic acid or its alkaline salts, between 5% and 70% of an inert powder such as lauroyl lysine of particle size less than 150 micron, and between 6.0% and 40% of bound water. They are prepared in the form of solid films of thickness between 60 and 150 microns, which can be punched or cut into the most suitable shapes for their cosmetic and pharmaceutical use.

To verify the functionality of the solid films an *in-vivo* test is described whereby a 3 x 4 cm piece of rectangular film was deposited on the previously wetted forearm of 6 females. This film piece was soaked with 1 ml of water then, while making rapid circular movements, complete gelling and disintegration with subsequent absorption occurred accompanied by a hydrating effect on the skin and filling of the cutaneous microprotuberances. Various possible formulations that comply with the descriptions in the patent were prepared and the rate of dissolution, the tactile sensation, hydrating effect and absence of residues were all evaluated. The one shown has moisturising and lifting properties.

Water	46.00%
Hyaluronic acid	6.00
Polymethylmethacrylate	21.00
Lauroyl lysine	6.00
Polysorbate-60	6.00
Butylene glycol	6.00
Corn starch	6.00
Hydroxypropyl Cyclodextrin	3.00

Title: Dissolvable Film Composition

USP Application: 20080102103

Serial Code & No 11/ 968755

Date of filing: January 3, 2008

Assignee: The Estee Lauder Cos, Inc

Claimed is a method for treating discoloured spots on skin by applying a patch comprised of a dried water soluble polymeric film impregnated with at least one skin lightening agent, followed by application of at least one water based additive composition to the patch in an amount sufficient to cause the patch to dissolve and deposit the lightening agent onto the skin.

The water soluble synthetic polymer comprises PVP, PVA, PVP/VA copolymer, homo- or copolymers of acrylic acid, methacrylic acid or their esters, or mixtures thereof.

In the skin the enzyme tyrosinase oxidizes tyrosine and the resulting intermediate compounds polymerise to form the brown-black melanin pigment. Excessive formation of melanin following prolonged sun exposure or due to disorders of epidermal melanin units is responsible for melasma, ephelides, and pigmented cosmetic dermatitis. Although the precise mechanism of excessive melanin formation has not been fully elucidated, the activation of tyrosinase appears to be a significant factor. Thus, the development of chemical agents capable of modulating the enzyme activity of tyrosinase would have considerable value for the control of the above-noted undesirable skin conditions.

Polyphenone E is the active component of Green Tea with potent anti-tyrosinase activity but it drastically discolours and loses activity when incorporated into an emulsion containing water. Hinokitiol is a bacterial fungicide with anti-irritant, anti-microbial and skin lightening properties. However, when Hinokitiol is incorporated into an emulsion, it develops a strong, unpleasant odour and discolours the emulsion. In mammals, retinoids fulfil essential roles, including maintenance of epithelial cells. However, retinoids are known to be chemically unstable and difficult to incorporate into cosmetic compositions. Vitamin C has many benefits for the skin, including whitening and stimulating collagen synthesis, however it is unstable when exposed to water, oxygen and light and therefore loses its activity and drastically discolours.

To overcome these problems the applicants suggest the use of a composition comprising an effective amount of active agent incorporated into a water-soluble polymeric film and an additive composition capable of dissolving the film to release the active. The film is made by mixing an aqueous solution of the polymer with the active and other ingredients that may be present to improve the aesthetics, stability and efficacy of the product. When homogenous it is cast into a film and the water content evaporated. It may be supplied as a number of films in a water-tight container or the films may be interleaved with non-water soluble films like polyethylene to keep them separate.

Separately is an additive composition is used to wet the water-soluble polymeric film so that when the labile active contacts the skin, it is transferred to the skin as the polymeric film dissolves. The labile active is maintained, as part of the film, in a relatively stable state until the actual moment of application to the user's skin. The additive composition may be as simple as ordinary water or water miscible ingredients such as polyols, depending on the relative water solubility of the polymeric film used and the nature of the additional components in the composition.

Title: Cosmetic composition containing novel fractal particle based gels having improved optical properties

USP Application: 20080152680

Serial Code & No **11/643573**

Date of filing: **December 21, 2006**

Assignee: **Avon Products Inc**

Claimed is a cosmetic composition that instantly reduces the appearance of wrinkles and skin imperfections while smoothing the skin. It is in the form of an oil-in-water emulsion and provides both optical blurring and skin smoothing effect on application.

The emulsion comprises a fractal gel network of oppositely charged nanoparticles, and a polymer whose refractive index matches the refractive index of one of the fractal particles. The fractal particles may be fumed silica, fumed alumina, fumed titanium dioxide, fumed zirconium dioxide, fumed cerium oxide, fumed zinc oxide, fumed tin oxide, and mixtures thereof. Their particle size is between about 100-250 nm and preferably represent between 20% and 40% of the composition.

To obtain the optical blurring effects it is necessary to incorporate a polymer whose refractive index substantially matches the refractive index of one of the fractal particles. The polymers are selected from the group consisting of Bis(trimethylsilyl)silicylate, phenyl trimethicone, PEG 12 dimethicone, propylene glycol dicaprylate, glycerin, diethylene glycol, glycerol, and mixtures thereof.

The composition also includes polymeric light diffusing agents selected from the group consisting of nylon, boron nitride, barium sulfate, polyethylene, polystyrene, ethylene/acrylic acid copolymer, fluorinated hydrocarbons, silicates and silicone, and mixtures and derivatives thereof. Cyclopentasiloxane and amino propyl dimethicone, cyclomethicone and dimethicone or a blend of low and high viscosity polydimethylsiloxane are included as film formers. Also included are pigments, an emulsifier and ingredients to improve the aesthetics, stability and efficacy of the product.

The fractal particle gel network has an open, reticulated structure, with size domains and refractive indices for the fractal particles adapted to effectively fill wrinkles and other surface imperfections in the skin, thus providing a surface smoothing effect. The gel network is highly thixotropic; the speed at which the network reforms to a gel is a function of particle concentration and the magnitude of the attractive interaction between the oppositely charged particles.

The patent is very extensive and includes much background on the nature of fractal particles; the matching of refractive indices of the particles and other ingredients and methods of achieving visible reduction in the appearance of wrinkles.

Title: **Cosmetic Product**

USP Application: **20080152683**

Serial Code & No **11/ 96375**

Date of filing: **December 21, 2007**

Assignee: **Nippon Barrier Free Co., Ltd.**

Claimed is a cosmetic product for inhibiting skin allergy symptoms; for improving skin conditions; for the lightening of pigmentation and freckles; for the reduction of skin dullness and the whitening of skin; for improving darkened pores and for increasing the amount of sebum on skin.

The active ingredient is derived from salmon roe sacs treated with a protease enzyme. Treatment and grinding results in particles having an average size between 200nm and 1400 nm. They are claimed to inhibit release of histamine and thereby can inhibit allergic symptoms, such as redness and itching. They are also claimed to inhibit synthesis of melanin and thereby can improve skin conditions, for example, the lightening of pigmentation and freckles, the reduction of skin dullness, and the whitening of skin.

Pores are darkened by deposition of a mixture of sebum, keratin, and the like, forming a keratotic plug in the pores; oxidization and melanogenisis in this area then darkens the pores. Dehydration of skin may cause various symptoms such as roughness of skin, an increase of wrinkles, and sensitiveness to external stimulus. The active ingredient described is claimed to improve the appearance of darkened pores and to increase the amount of sebum on dried skin.

The in-vitro test methods and results of measuring histamine inhibition and melanin reduction are described in detail and in-vivo trials utilising the extract at 0.5% in a simple carrier are also discussed. It is also suggested that the extract can be used as an active component in health food supplements to improve skin appearance.

Title: Compositions for Treating Keratinous Surfaces

USP Application: 20080152606

Serial Code & No 11/ 866885

Date of filing: October 3, 2007

Assignee: Revlon Consumer Products

Claimed is a cosmetic composition comprising acetyl hexapeptide-3 in a cosmetically acceptable carrier, and use of such cosmetic compositions in improving skin conditions associated with aging such as wrinkles, fine lines, laxity, mottled pigmentation, and sallowness.

The hexapeptide used in the compositions of the invention has the INCI name Acetyl Hexapeptide-3 and may be purchased from Lipotec under the trade name Argireline. The powder form appears as a white to off-white powder comprising about 2.7 to 3.3% gGlutamic acid, about 0.6 to 1.0% methionine, and about 1.8 to 2.2% Arginine. The solution is a transparent liquid containing about 0.05% powder in water and preservative.

The compositions described preferably contain from about 0.001-18% by weight of acetyl hexapeptide-3. In general, the acetyl hexapeptide-3 may be incorporated into any type of cosmetic composition and the patent lists many possibilities and comprehensively lists all the different groups of raw materials from which they may be made.

Example formulations include an oil-in-water emulsion facial and body cream with SPF protection and 1% acetyl hexapeptide-3 and an oil-in-water emulsion face and body moisturising cream and a liquid foundation, both also with 1% acetyl hexapepetide-3.

Title: Coffee Cherry Compositions and Methods

USP Application: 20070281048

Serial Code & No 10/59966

Date of filing: December 6, 2007

Assignee: VDF Futureceuticals, Inc

Claimed are cosmetic compositions that include coffee cherry preparations that will have at least one of an antioxidant effect, an anti-inflammatory effect, a UV-protective effect, an anti-mutagenic effect, a chemo-protective effect, a scar reducing effect, a skin-lightening effect, a moisturising effect, a wrinkle reduction effect or an antibacterial effect.

The coffee cherry extract is prepared from sub-ripe coffee cherry or quick-dried coffee cherry, such that a mycotoxin level of the coffee cherry is less than 20 ppb for total aflatoxins, less than 10 ppb for total ochratoxins, and less than 5 ppm for total fumonisins. Preferred coffee cherry preparations are alcoholic or aqueous/alcoholic extracts that are prepared from at least two of a bean of the coffee cherry, the pulp, the mucilage, and the hull of the coffee cherry.

Especially preferred formulations include shampoos, lotions, creams, balms, and ointments. Such preparations include at least two classes of compounds selected from the group consisting of coffee acids, essential monosaccharides, coffee mucilage polysaccharides, and trigonelline. These compounds are present in the extract in an amount of at least 1 % and more typically at least 5 %. Coffee acids include chlorogenic acid, ferulic acid, and caffeic acid and essential monosaccharides include arabinose, fucose, malmose, xylose, and galactose. Caffeine may be present between about 0.5 % to about 2 % and even higher.

It is claimed that numerous coffee cherry components complement each other in their potential various ingredients. The coffee acids may confer UV protection and antioxidant properties and various polysaccharides, and especially mucilage polysaccharides, may have a hydrating effect. Claimed beneficial effects include improved skin tone, increased exfoliation, keratinolytic effect, reduction in wrinkles, reduction in biological and apparent ageing, reduction in hyperpigmentation due to UV exposure and a reduction in direct and indirect oxidative damage, in irritation and inflammation.

Title: Use of Sphingoid Base Associated with Nicotinic Acid or a Nicotinic Acid Amide in the Form of Depigmentation Agent

USP Application: 20070238764

Serial Code & No 11/547846

Date of filing: April 8, 2005

Correspondence: Buchanan, Ingersoll & Rooney Pc

Claimed is a method for cosmetic treatment of the skin, intended to reduce, eliminate or avoid pigmentation spots, to lighten skin and to control skin hyperpigmentation.

This is achieved by applying a composition comprising a combination of nicotinic acid or a nicotinic acid amide and of at least one sphingoid base as a de-pigmenting agent. It is highly preferred that the nicotinic acid amide is nicotinamide and that the sphingoid base is chosen from phytosphingosine, salicyloyl phytosphingosine or phytosphingosine hydrochloride.

The preferred level of the sphingoid base content is between 0.05% and 2% and of nicotinic acid, or of nicotinic acid amide, between 0.1% and 10% by weight relative to the total weight of the composition. Sphingoid bases such as phytosphingosine and sphingosine are ceramide precursors and are present in human skin Studies have shown that these molecules have inhibitory properties on protein kinase C, and appear to be involved in epidermal keratinocyte differentiation.

Nicotinamide or niacinamide, also called vitamin PP, vitamin B3 or niacin, is known for its de-pigmenting properties. Studies carried out by the applicant have shown a synergistic effect on lightening skin by combining nicotinic acid or a nicotinic acid amide such as vitamin PP, and a sphingoid base within the same composition.

Preferably, the spingoid bases described are prepared by microbial fermentation, for example from a yeast such as *Pichia ciferii*, and the phytosphingosine obtained in this way has the advantage of being very similar to that of human or animal skin. Preferred is phytosphingosine obtained from tetraacetylphytosphingosine by deacetylation. The deacetylation reaction can be carried out by hydrolysis in a basic medium, or by enzymatic reaction.

Niacin is thought to act mainly via a mechanism of inhibition of melanin transfer to the keratinocyte, whereas phytosphingosine is thought to inhibit NFkappaB translocation after exposure to UV radiation. The excipients and carriers which can be used in the compositions are those commonly used in preparations for cosmetic use, and are chosen according to the selected administration form

Title: Use of biotin or a biotin derivative for lightening skin and treating age spots

USP Application: 20070020206

Serial Code & No 10/569784

Date of filing: August 12, 2004

Correspondence: Stephen M Haracz; Bryan Cave

Biotin exhibits a surprisingly high skin-lightening effect when it is administered together with vitamin C or a vitamin C derivative. Claimed is the use of biotin alone, preferably, however, with vitamin C or a derivative thereof, for the preparation of a cosmetic composition or of a pharmaceutical composition for skin-lightening purposes, for the elimination of skin colour irregularities and for the treatment of senile lentigines.

Biotin or a biotin derivative or salt is present at between 0.01% to 1.0% but most preferably at 0.1% and the vitamin C derivative is present at a concentration of 0.1% to 15% by weight, in relation to the weight of the composition. Lipophilic biotin derivatives are thought to penetrate the skin better than biotin itself and biotin esters are particularly preferred, from which, after penetration through the stratum corneum, biotin is released by the skin's own enzyme systems.

The preferred Vitamin C derivative is sodium ascorbyl phosphate and the active ingredients may be encapsulated in liposome form for added stability. It is possible to formulate biotin as an oral composition, for example in the form of pills, tablets, capsules or as liquid oral formulations. The concentration of biotin may be greater in an oral composition in order to provide a common daily dosage in the range from 20 micrograms per day to 2 mg per day.

Compositions according to the patent may be in almost any common cosmetic form containing both Vitamin C and biotin derivatives or as two part compositions whereas the Vitamin C derivative is in a suitable vehicle for topical application and the biotin derivative is in a form suitable for oral ingestion.

Various formulations illustrate the patent and the results of skin lightening tests are given. In summary one such test ended with the conclusion that the very high skin lightening effect of a mixture of 3% sodium ascorbyl phosphate and 0.1% biotin was particularly surprising.

Title: Antiaging Cosmetic Delivery Systems

USP Application: 20050048008

Serial Code & No 10/604999

Date of filing: August 29, 2003

Assignee: Bioderm Research

The patent is claimed to provide a comprehensive solution to the problems associated with natural topical aging via the incorporation of: antioxidants, an anti-inflammatory compound and a collagen or fibrin boosting composition.

The inventors claim that an effective antioxidant composition needs to be in two parts. One to adhere to the skin surface to provide protection at the stratum corneum, and the other to penetrate into the epidermis to provide protection in deeper skin renewal layers where fresh skin cells are generated.

The composition also includes an anti-inflammatory compound to reduce the skin irritation caused by environmental and other factors that is thought to cause the degradation of collagen, which results in skin wrinkles. With the natural aging process the production of collagen and fibrin slows down. This causes skin thinning, loss of skin elasticity, and formation of wrinkles. The inclusion of collagen or fibrin boosting compositions in any comprehensive anti-aging treatment is thus of biological importance for skin regeneration.

The inventors also claim that an effective delivery system is a combination of both art and science that can improve the performance and consumer appeal of a consumer product or composition.

For a detailed description of the science behind material choices readers are urged to study the full patent in which combinations of a cationic quaternary ammonium composition with an anionic derivative are suggested as effective anti-oxidant systems. Examples are a combination of glutathione with a polymeric quaternary ammonium composition, such as Polyquaternium-59, to produce Polyquaternium-59 glutathionate and Polyqyaternium-59 ascorbate, prepared from Polyquaternium-59 and sodium ascorbate. These ion-pair

ingredients are claimed to have antioxidant and skin smoothing properties with better deposition on skin due to the interaction of their cationic charge with the anionic charge of human skin.

The patent lists many similar combinations and also discusses the advantages of using more than one antioxidant to create a synergy. Similarly the use of more than one anti-inflammatory agent is believed to be an advantage. An exhaustive list is given but Zingiber officinale root extract in combination with hydrogenated tetrahydrocurcuminoids are of particular interest. Similarly, many possible collagen and fibrin compounds are listed and various representative formulations given.

Title: Nicotinamide Compositions for Treatment of Skin Diseases and Disorders

USP Application: 20080112968

Serial Code & No 11/870307

Date of filing: October 10, 2007

Assignee: Dermena, Canada

Cosmetics cannot claim to treat skin diseases but the patent may still be of interest to formulators because of its use of Wakame seaweed extract, glycosaminoglycans and nicotinamide, all of which are commonly used cosmetic ingredients.

The composition is said to be an effective anti-wrinkle cream for improving the structure of the dermis and restoring firmness and tonicity to the skin. It is also claimed to maintain or improve the moisture level and smooth the skin of the user.

The most preferred glycosaminoglycan is heparin obtained from Wakame seaweed and the preferred nicotinamide salts are those of 1-methylnicotinamide, particularly the chloride. These ingredients are administered in a suitable composition for topical application. The maximum levels claimed for their use are very high but preferred levels are 1% or considerably less of the nicotinamide salt and approximately 9 times this level of Wakame extract.

The patent describes all possible combinations and methods of application and various test protocols to prove the efficacy of the compositions.

Title: Topical Ceramide Compositions and Methods of Use

USP Application: 20080103207

Serial Code & No 11/ 835322

Date of filing: August 7, 2007

Assignee: Takasago International Corp. (USA)

As the skin ages, the total lipid content in the skin decreases and proportion of skin lipids also changes, resulting in skin disorders caused by the diminished barrier function of the skin. Ceramide NS and butylene glycol can form a topical composition in which the ceramide NS is lamellar and can be used in topical applications for dry

skin, skin irritation, skin wrinkles, or other conditions in which the skin barrier is compromised, damaged, or disordered.

The applicants describe ceramides as simple sphingolipids composed of sphingosine, an 18-carbon chain with hydroxyl and amine groups, with an amide linked fatty acid. Ceramides are one of the most hydrophobic molecules in nature making the permeability of ceramides applied to the skin low. The nine classes of ceramides are essential for multiple biological processes including apoptosis, mitosis and signal transduction and play a key role in the barrier function of the stratum corneum including controlling trans-epidermal water loss.

Ceramide 2 (or ceramide NS) is derived from epidermal sphingomyelin SM-1 and has been shown to inhibit cell proliferation and induce apoptosis. Between 1% and 5% ceramide NS can be dissolved in butylene glycol by heating and stirring, resulting in a lamellar structure. Unlike crystalline ceramide NS, lamellar ceramide NS is bio-available and interacts effectively with the intracellular lipids of the stratum corneum to increase the barrier function of the skin. In addition, lamellar ceramide NS topically administered to the skin can serve as an efficiently recognized enzymatic substrate for conversion to other ceramides such as ceramides 8, 5, and 7. It is claimed that the creation of a variety of ceramides may lead to faster skin barrier repair, inhibition of cell proliferation, induction of apoptosis, and, consequently, promotion of the health of the skin.

The ceramide-butylene glycol mixture is incorporated in compositions suitable for topical application to the skin at a level of approximately 2%. Various compositions are described and the methods and results of clinical trials performed to illustrate its efficacy are included in the patent.

Title: Composition for Keratin Fibres

USP Application: 20080124293

Serial Code & No 11/938345

Date of filing: November 12, 2007

Assignee: Kpss-Kao Professional Salon Services GmbH

Claimed is a composition for hair in the form of a water-in-oil (w/o) emulsion comprising at least one volatile silicone oil and at least one w/o emulsifier; a cationic conditioning aid and an internal water phase that includes a dispersion of synthetic mica coated with metal oxide or oxides with a particle size distribution preferably in the range of 20 and 95 microns.

The preferred silicone compound is a volatile cyclomethicone or dimethicone with a viscosity below 50 mPas @ 20° C at a preferred concentration of 20 to 30% by weight calculated to total composition. It may also include one or more non-volatile oils in the oil phase such as dimethicone, dimethiconol, phenyl trimethicone, a fatty acid ester or a natural vegetable oil.

Suitable cationic surfactants and conditioning agents are long-chain quaternary ammonium compounds which can be used alone or in admixture with one another, such as alkyl trimethyl ammonium chlorides.

The preferred w/o emulsifier is a silicone surfactant such as PEG/PPG 18/18 dimethicone or PEG/PPG 20/15 dimethicone present at a concentration of 0.5 to 2.5% by weight, calculated to total composition**.**

Fragrance, chelating agent, preservatives, rheology control agents and other conventional cosmetic ingredients can be included at their usual concentrations either into the oil or aqueous phases depending on their solubility. The composition may also include a fixing polymer and protein hydrolysates.

The preferred product form is as a sprayable leave-on conditioner to be applied after shampooing and it is designed to aid condition and ease of combing and to impart a shine to the hair.

Title: Regulation of Mammalian Hair Growth

USP Application: 20080188505

Serial Code & No 12/056377

Date of filing: March 27, 2008

Assignee: The Procter & Gamble Co

Described is a method of inhibiting mammalian hair growth by topically applying a safe and effective amount of agmatine, its salts and derivatives, and mixtures thereof, and a dermatologically acceptable carrier to the skin of a mammal in need of treatment.

According to the applicants, for women in the United States, it is generally preferred to have hair on the scalp, but not on the legs, underarms, or certain areas of the face. Various procedures and personal care products have been developed to remove unwanted hair; however, conventional procedures frequently have drawbacks associated with them. Therefore, a need exists for a safe, effective way to not only regulate the condition of mammalian keratinous tissue, but also to retard, inhibit or stop unwanted mammalian hair growth on designated areas of the body.

Compositions containing agmatine and its sulfate salt, in combination with other selected skin care actives, are useful for retarding, inhibiting, or eliminating hair growth. The applicants believe that agmatine is able to modulate hair growth by inhibiting protease activity in and surrounding the hair follicle. Proteases are key components in restructuring of the extracellular matrix during follicular progression through the dermis. Additionally it is claimed that materials such as BHT, BHA, cetyl pyridinium chloride, hexamidine, and ursolic acid can also be used for retarding, inhibiting, or eliminating hair growth.

Agmatine most preferably comprises from about 0.1% to about 2.5% by weight of the total composition. BHT or BHA most preferably comprises from about 0.1% to about 0.5%, hexamidine about 0.1% to 0.5% and cetyl pyridinium chloride is present at about 0.05% to about 1.0%. Green tea catechetins and phytosterols, ursolic acid and other plant extracts may also be included.

According to the patent the compositions described may also contain a variety of other ingredients that are conventionally used in given product types provided that they do not unacceptably alter the benefits of the invention. As with many P&G patents it then lists almost all possible materials to be found in cosmetic products. The compositions described are claimed to be particularly suitable for the treatment of hirsutism and should be applied once or twice a day for at least three months to achieve a perceived reduction in hair growth.

Title: Use of Natural Zein for Improving the Condition of Hair and Agent Therefore

USP Application: 20080025936

Serial Code & No 11/86746

Date of filing: October 4, 2007

Correspondence: Striker, Striker & Stenby, NY

Claimed is the use of natural zein for improving the condition of hair, preferably for hardening, strengthening, restructuring or increasing the lustre, volume or combability of human hair.

The applicants suggest that keratin fibres are damaged by environmental influences, physiological status or mechanical or chemical effects. This results in impairment of their mechanical properties and damage to their inner structure as indicated by a loss of hardness and lustre and a reduction in strength.

Commercial rinses and treatments contain as active substances mainly cationic surfactants or polymers, waxes and oils. The more damaged the hair, the more anionic groups are present on the hair surface. Cationic compounds are electrostatically attracted by this oppositely charged surface, whereas oils and waxes interact with the hydrophobic groups of keratin. An improvement in internal hair structure can therefore not be achieved with these hair-care agents.

The stated aim of the applicants was to provide a cosmetic hair-treatment agent for use in improving the condition of hair combined with an improvement in internal hair structure and this is achieved by use of natural zein, the non-hydrolysed protein obtained from corn (Zea mays). It is a constituent of corn protein to an extent of about 40% and is contained in corn gluten to an extent of about 60-70%.

They claim that by use of natural zein the structure of keratin fibres is modified so as to bring about hardening and strengthening as well as an increase in breaking strength, tensile strength or bundle tensile strength, particularly in case of weakened or damaged keratin fibres. Besides a hair-care effect resulting from action on the hair surface they observed a repair effect attributable to changes inside the hair. They measured the tensile forces that cause previously damaged hair to break and found that hair treated with an agent containing natural zein showed a significant increase in strength. An increase in hair volume was also noted.

It is recommended that the natural zein be added to suitable hair treatment compositions at levels up to about 5% and it appears to act to particular advantage when incorporated in hair colouring, bleaching and permanent waving compositions.

Title: Silicone-free long-lasting shine hair care compositions

USP Application: 20050136020

Serial Code & No 10/741881

Date of filing: December 19, 2003

Correspondence: Ohlandt, Greeley, Ruggiero & Perle, Llp

Claimed are hair care compositions that impart shine and gloss to hair comprising one or more ethoxylated esters formed by reaction of a fatty acid having from about 8 to about 22 carbons with ethylene oxide and propylene oxide.

Many possibilities are described but the preferred ethoxylated ester is PEG/PPG-83 laurate and a very wide range of concentrations is eventually narrowed down to approximately 2%. The composition may also include one or more ingredients selected from the group consisting of emollient, film former, humectant, surfactant, colorant, buffer, chelating and sequestering agent, fragrance, hair conditioning agent, pH adjusting agent, propellant, preservative, viscosity modifier, viscosity control agent, and any combinations thereof. It may also include one or more active agents selected from the group consisting of insect repellent, sunscreen, UV light absorber, biological extract, plant extract, and any combinations thereof.

The composition is water-based and clear and preferably in gel form to be used as a styling composition that also adds shine and gloss to the hair. The applicants claim that ethoxylated esters are known as emollients and hair conditioning agents, not as shine agents or glossers however the claimed compositions not only gave shine, but the shine lasted longer than conventional silicone-based products. It was also found that the use of ethoxylated esters not only achieved long-lasting shine, but also did not result in the greasiness associated with conventional silicone products.

PEG/PPG-83 laurate has a refractive index of 1.456 and is both oil and water-soluble and can be added directly into a vehicle for a water-based shine gel or other hair care composition and the patent describes various test methods for evaluating shine and curl retention.

Title: Hair styling cream

USP Application: 20070202068

Serial Code & No 11/607197

Date of filing: December 1, 2006

Assignee: The Procter & Gamble Co

Some styling products have the ability to form fibre-like structures during the drying period when rubbed between two fingers or hands and pulling the fingers or hands apart. Such products allow for a very advantageous way of applying the product by placing a multitude of threads like a spider web on the hair which then can be worked very easily into the hair however such products may leave the hair feeling greasy or heavy.

Described are hair styling creams comprising a cross-linked silicone polymer; an alkoxylated compound selected from polyethylene oxides and polyalkoxylated silicone compounds; an emulsifier; a fatty phase and an aqueous phase. The cream can be transferred into rope-, thread-, or fibre-like structures when distributed in the hands and gives a powdery feel after drying and it improves stability and gloss of hair.

The most preferred cross-linked silicone polymers are compounds with the INCI-name dimethicone crosspolymer. These are polymers of dimethicone cross-linked with C3 to C20 alkyl groups. Dimethicone is the INCI-name for fully methylated linear siloxane polymers end blocked with trimethylsiloxy units and preferably comprise between 10% and about 25% of the final composition.

The preferred amount of alkoxylated compounds is from about 8% to about 20% by weight and the preferred ones are PEG-10 and PEG-12; these are polyglycol 400 with a molecular weight of about 380 to about 420 and polyglycol 600 with a molecular weight of about 570 to about 630 respectively. Alkoxylated silicone compounds are also cited as preferred ingredients of which the fatty acid esters of bis-(polyethylene oxide)-polydimethylsiloxanes are selected from a long list of possibilities.

The emulsifier can be any suitable for forming a stable emulsion; the preferred components of the fatty phase are selected from hydrocarbon compounds, fatty alcohols, fatty acid triglycerides and silicone oils. The aqueous phase is mainly water plus alcohols and glycols and the specially preferred hair fixative polymers are polyvinyl pyrrolidone, polyvinyl caprolactam, and polyvinyl pyrrolidone/vinyl acetate copolymers. The most preferred rheology modifier is acrylates/C10-30 alkyl acrylate crosspolymer.

Title: Use of fluorescent polymers for the treatment of human hair

USP Application: 20080187505

Serial Code & No 11/ 301702

Date of filing: December 13, 2005

Assignee: The Procter & Gamble Co

Fluorescent compounds are substances that are able to absorb light of one wave length that lies preferably in the UV range (<400 nm), and to radiate light of a higher wave length that lies preferably in the visible range (>400 nm). The patent describes hair waxes, hair conditioners, hair lotions, hair gels, hair creams, hair foams, hair sprays and shampoos that contain fluorescent polymers for the treatment of human hair, especially for the improvement of hair gloss.

The fluorescent polymers can also act as thickeners, compatibility enhancers or as film-forming styling polymers when used as hair cosmetics. Depending upon the monomer composition, they are characterised by a specific absorptive behaviour on the hair. Through their fluorescence, the absorptive behaviour of these polymers can be used as indicators for certain hair conditions, for example hair damage.

Perylene dyes have been known for a long time as highly lightfast and stable fluorescent dyes with very high fluorescent quantum yields. Preferred fluorescent polymers are constructed of at least one type of fluorescent monomer that has at least one perylene or at least one naphthalene bislactam structural unit. These monomers are preferably unsaturated ethylenic, radically polymerisable monomers. The perylene structural units are preferentially tetracarboxylic acid bisamides or hexacarboxylic acid trisimides, in which at least one of the nitrogen atoms is substituted with a suitable vinyl group. In the case of the naphthalene bislactams the polymerisable vinyl group is present preferably as a substituent on a nitrogen atom.

The patent describes all the hair products that could possibly be used as vehicles for the fluorescent dyes and also the synthesis of the dyes in some detail. Illustrative formulations show the dyes to be added at about 0.50% to about 5%.

Title: Multifunctional cosmetic composition, process for preparing said cosmetic composition and cosmetic product

USP Application: 20080241202

Serial Code & No 12/064550

Date of filing: September 22, 200

Correspondence: Alston & Bird Llp

Claimed is a multifunctional cosmetic composition comprising: a silicone system with at least one component selected from Theobroma grandiflorum (Cupuacu) seed butter, Astrocaryum murumuru seed butter and Butyrospermum parkii (Shea) butter. It is claimed to be rapidly absorbed giving intensive and prolonged moisturising when applied to skin and can be applied before, during and after a bath.

The composition is an oil-in-water emulsion with a silicone system of cyclomethicone as a light silicone present at 4.00% by weight, and a mixture of cyclomethicone and dimethiconol as a heavy silicone present at 2.00% by weight. In addition the oil phase has an emollient system comprising decyl oleate; dicaprylic ether and cetyl lactate with 1% each of cupuacu butter, murumuru butter and shea butter plus 0.1% menthol to add freshness. The emulsifying system is composed of steareth-2, steareth-21 and glyceryl stearate in an amount ranging from 3.0% to 5.0% by weight, based on the total weight of the composition.

The combination of the silicone and emollient system provides optimisation of the properties of softness, smoothness, spreadability and absorption resulting in comfort and well-being during and after application. During the pre-bath massage it has excellent spreadability; when applied during the bath it provides the feeling of skin treatment, film formation and moisturising; and when applied to dried areas or dry skins it provides moisturising. The associated silicones promote ease of absorption of the emulsion in the skin and, at the same time, good spreadability, without promoting an oily feel. The butters promote high consistency, which after rinsing leave a moisturising film, besides being emollients capable of replacing the natural oil of the skin. The associated silicones and butters exhibit a synergistic effect that confers to the product its multifunctional properties since it promotes a pleasant feeling in all the application modes.

Title: Water stream dispersible skin care solid composition

USP Application: 20070286834

Serial Code & No 11/450285

Date of filing: June 12, 2006

Inventor: Popov; Alexander G

Described is a solid composition in the form of a tablet designed to be used when having a shower. It is described as an allergen absorbing solid composition for shower based continuous water streams that has a preventive and alleviative effect by absorbing and removing skin-irritants and allergens. It comprises a powder including one or more components selected from clay, charcoal and mineral mud plus herbal extracts, essential oils, cellulose ether, binding agents and colorants.

The inventors suggest that many popular and effective skin cleaning materials cause significant drying and wrinkling, allergic reactions and other deleterious effects. They believe that there is a need for skin cleaning compositions that are effective yet gentle, supplying antioxidants and minerals and which protect and preserve the skin.

The objective is realised by supplying the product as a water-dispersible tablet. It is claimed that charcoal significantly enhances the effectiveness of skin-cleaning compositions in adsorbing dirt and dead skin cells trapped in the pores of the skin. It is believed that this results from the enhanced ability of the water used along with the cleaning compositions to penetrate the skin. It may also help preserve the skin by promoting moisture retention, promoting blood circulation, and reducing wrinkling. Clay provides cleaning and whitening effects and acts as an anti-allergen.

Critically important is the availability of additives which provide a means for regulating the speed of solution: 0.5% to 5% carboxy methyl cellulose is added for this purpose. The preferred composition also contains up to 40% polyethylene glycol plus 0.5% to 7% herbal extracts 0.5% to 10% of essential oils and suitable colorants, perfumes and binding agents.

Title: Depilatory composition in emulsion form, process for preparation and use

USP Application: 20080213205

Serial Code & No 11/ 660817

Date of filing: August 24, 2005

Inventor: Moussouni; Farid

Claimed is a depilatory composition that remains in place on the skin for enough time for hair degradation to take place even when rinsed or immersed in water for short periods of time. The composition is an emulsion of hydrophobic particles in a continuous aqueous phase, wherein the aqueous phase comprises a depilatory agent and the hydrophobic particles comprise a fatty alcohol and an oil-gelling agent.

The oil-gelling agent is preferably wax with a melting point between 65°C and 130°C present at about 1 to 3% by weight. Suitable waxes include beeswax, carnauba, bayberry, candelilla, ozokerite, ceresin, hydrogenated castor oil and microcrystalline waxes. Polyethylene particles with a mean molecular weight of 400 are also a preferred part of the composition and their presence leads to a marked increase in rinsing time for the compositions. The preferred fatty alcohols are cetyl alcohol and stearyl alcohol present at between 7% and 11%. The presence of the oil-gelling agent along with the fatty alcohol in the hydrophobic particles of the composition leads to a considerable improvement in the adherence of the composition to the skin, even when subjected to a stream of rinsing water.

The composition is an oil-in-water emulsion and the preferred emulsifier is a non-ionic surfactant. Suitable non-ionic surfactants include alkyl ethers of polyethylene glycol or polypropylene glycol, including mixed ethers and mixtures thereof. The emulsifier is most preferably from 3% to 8% by weight of the composition. The emulsion may be thickened with suitable clay, preferably sodium lithium magnesium silicate, as this provides lithium, sodium and magnesium ions for the buffer system and improves the efficiency of depilation.

Depilation is achieved by the presence of potassium thioglycollate in the composition with an accelerator such as urea or methyl propyl diol. The composition is buffered to pH 12.3 by the presence of calcium hydroxide and it may contain preservatives, colorants, perfume and other ingredients that improve its aesthetics and stability.

Title: Skin care compositions including hexapeptide complexes and methods of their manufacture

USP Application: 20080107679

Serial Code & No 11/982165

Date of filing: October 31, 2007

Correspondence: Cislo & Thomas LLP

Described are skin care compositions that include at least one wrinkle reduction agent, which is a hexapeptide, and a natural exfoliating complex. The skin care compositions are claimed to provide natural skin exfoliation, reduce fine lines and wrinkles, and improve skin elasticity and firmness.

The anti-wrinkling agent is a hexapeptide, preferably acetyl hexapeptide-3, present at from 0.1% to 5%. It is said to be an anti aging ingredient chemically combined from naturally derived amino acids that minimises and softens fine lines. It a highly effective wrinkle reducer of fine to medium depth lines and specifically targets the repeated, biomechanical, muscular contractions of facial expressions such as laughing, squinting and frowning, by reducing the intensity of these muscle contractions.

The natural exfoliating complex is composed of Ahnfeltia cocinna and may also include butylene glycol and glycosaminoglycans. This combination is claimed to increase fibroblast proliferation by approximately 18% within about 4 weeks, without the over stimulation commonly caused by the use of alpha hydroxyacids or retinol. Cells rebuild more slowly and in a more uniform and organised manner that ensures a more symmetrical cell alignment Raw material cell culture studies show that the newly rebuilt cells possess a high water binding capacity that provide intense, immediate, super hydration.

The composition may also include about 1% to 2% white willow bark extract. This natural exfoliating extract can increase the cellular renewal capability of the formulations better than salicylic acid and with less irritation. The willow bark extract creates a general improvement in the skin's appearance that results in smoother skin and a reduction in fine lines and wrinkles.

Other active ingredients may be included in compositions suitable for topical application.

Title: Polypeptides and compositions derived from the horny layer of the epidermis and its use

USP Application: 2007023131

Serial Code & No 11/54684

Date of filing: October 4, 2007

Assignee: L'Oreal

Described is a purified epidermis-specific polypeptide that is involved in cell cohesion in the stratum corneum. Also described are cosmetic or pharmaceutical compositions comprising a mixture of polypeptides derived from the proteolysis of the purified polypeptide.

Numerous pathological conditions of the skin are characterised by the production of a thick horny layer and by abnormal desquamation or hyperkeratosis. These include xerosis or dryness of the skin, ichthyoses, psoriasis and certain benign or malignant tumour lesions. By contrast, some pathological manifestations cause thinning of the epidermis and in particular of the horny layer, resulting in excessive fragility of the skin. Examples include skin disorders of the lower limbs in patients carrying vascular pathological conditions: varicose veins, diabetes, arteriosclerosis and the like.

The applicant believes that knowledge of the polypeptides involved in intercorneocyte cohesion is one of the routes which could allow the production of products for combating the effects of an excess or a deficiency of polypeptides of this type, in particular at the skin surface. The applicant has identified, isolated and purified a polypeptide specific to the hornified epithelia involved in intercorneocyte cohesion and determined its amino acid sequence. It may then undergo one or more post-translational modifications. Most preferably, the polypeptide of the patent is a basic, phosphorylated, glycosylated polypeptide having an apparent molecular weight of between 52 and 56 kilodaltons. This may then undergo proteolysis by enzymes. Analysis of the primary amino acid sequence of the protein according to the invention shows that it has recognition and binding sites for known proteases or specific sites for cleavage by chemical agents.

The polypeptide and the polypeptides derived from the proteolysis of it are incorporated in suitable cosmetic and pharmaceutical compositions for topical application and the treatment of skin disorders caused by hyperkeratosis and also for treating excessive thinning of the skin. Their use in shampoos and other hair products including permanent waving and oxidation dyeing compositions and in products for oral care are also described and included in the patent.

Title: Cosmetic compositions (for plumping lips or skin)

USP Application: 20080112990

Serial Code & No 12/ 014241

Date of filing: January 15, 2008

Assignee: Revlon Consumer Products Corp.

During the process of aging, subcutaneous fat is lost on the face, which results in the formation of hollows. The facial skin then becomes too large for the face, providing a condition referred to as skin laxity, which in turn promotes formation of wrinkles and lines. Skin laxity may be treated by cosmetic surgery or by injections of hyaluronic acid or polylactic acid. Cosmetic treatments include the use of mild irritants that cause temporary swelling of the lips and of collagen peptides that are said to stimulate production of collagen.

The inventors claim to provide a cosmetic composition containing ingredients that associate in situ after application to form a complex that will improve plumping of the skin and ameliorate the appearance of fine

lines, wrinkles, and skin laxity. The composition comprises at least one peptide, at least one collagen containing compound, at least one penetration enhancer, at least one mucopolysaccharide, and at least one proteoglycan.

Suitable peptides include those having anywhere from 2 to 1000 amino acids and examples are, palmitoyl oligopeptide, acetyl hexapeptide-3 and palmitoyl pentapeptide but most preferably the peptide is collagen prepeptide. The most preferred collagen compound is atelocollagen, present at about 0.0005% to 3%. Suitable penetration enhancers are typically liposomes, more specifically phospholipids, present from about 0.0001% to 3%

Proteoglycans are a class of glycosylated proteins that have covalently linked sulphated glycosaminoglycans. Examples of proteoglycans include chondroitin sulfate, dermatin sulfate, heparin sulfate, heparin, keratin sulfate, and the like. Particularly preferred is chondroitan sulfate, comprising from about 0.0005% to 3% by weight of the total composition. The preferred mucopolysaccharide is hyaluronic acid, incorporated at 0.0001% to 3%. Vitamin E and suitable botanical extracts may also be added to the composition.

The ingredients described are available as a proprietary mixture from Active Concepts under the trade name Nanomatrix Complex CP3 and this is present in the final composition at up to 8%. The final composition may be in any form suitable for topical application to the areas suggested and comprising any ingredients suitable for such application. The patent is extensively illustrated with example formulations.

Peptides are increasingly popular active ingredients in the more expensive skin care products. Proteins and peptides are generally defined by a linear sequence of amino acids. Peptides are generally composed of from two to fifty amino acids and proteins are a sequence of amino acids, joined by peptide bonds. Peptides may be obtained by hydrolysis of the peptide bonds of a protein or by chemical synthesis in which peptide bonds are formed between amino acids, or between amino acids and peptides.

Title: Elastin peptide analogues and uses thereof

USP Application: 7,666,842

Serial Code & No 10/ 946,436

Date of filing: September 21, 20

Assignee: Connective Tissue Imagineering, LLC

The patent describes compositions containing one or more peptides and methods for using the compositions. The peptides of the composition may correspond to, be analogous to, or are substantially homologous, with portions of elastin. The elastin may come from a variety of different organisms and the compositions and methods may be useful in improving skin tone, elasticity, turgor, and appearance.

The peptides were obtained by digesting elastin with the enzyme thermolysin, obtained from Bacillus thermoproteolyticus. The process was controlled by adjustment of temperature and pH to give a mix of peptides having a molecular weight of less than 10,000 Daltons. The material was then incorporated into suitable compositions for topical cosmetic application and these may be in any format in general use for this purpose.

Compositions containing the peptides may be formulated at an effective concentration in a range of about 0.0002% to about 90% by weight of the peptide or peptide-like compound. In one example, the peptide concentration is between about 0.5% to about 10% of the composition. It is believed by the inventors that topical

application of the elastin peptides would result in an increase in tissue elastin. The patent includes pharmaceutical applications including those using steroids and retinoic acid. Applications more suited to cosmetic use include compositions for the hair, lips and nails as well as skin. Hair growth, colour, and removal may all be improved by treatment with elastin peptides, which may make the hair stronger and shinier. It may also improve the condition and healing of irritated skin upon removal of unwanted hair. Chapped lips may be greatly improved upon treatment with elastin peptide and long-term relief may be a potential benefit from the stimulation of endogenous elastin in these tissues.

Elastin is useful in treating and preventing nail brittleness, split nails, and to enhance the hardness of nails in general. Nails are comprised of flattened epidermal cells and have a high concentration of elastin in the nail bed. Thus, increasing the elastin content of these cells may result in a stronger and more flexible nail.

Title: Cosmetic product containing mineral water for remineralising and rejuvenating the skin

USP Application: 7,459,166

Serial Code & No 10/555,489

Date of filing: May 21, 2004

Assignee: Coty B.V.

The stated objective of the invention is to provide a cosmetic having long-lasting remineralising properties and to impart a rejuvenating and anti-ageing effect to the skin. It is preferred that water from a volcanic lake in the region of Clermont-Ferrand (France) be used and the preferred cosmetic composition also contains 0.01 to 2% by weight of an extract from Samphire crithmum maritimum and 0.01 to 2% by weight of a solution of the peptide palmitoyl-gly-his-lys in propylene glycol as additional active agents.

Volcanic water is rich in mineral ions dissolved out of rock over long periods of time, such as iron, selenium, zinc, calcium, magnesium, sodium, potassium and phosphorus, which act as cofactors in the enzymatic biochemical reactions of human skin. These ions decrease with the subject's age and are restored to normality by the claimed composition. This applies to both the Na and K contents, which are important for controlling the water content, and the Ca, Mg and P contents, which play decisive roles in the ageing and growth processes of the cells.

In contrast to known thermal and mineral waters, the volcanic water contains only very small amounts of carbonate and hydrogen carbonate, and large amounts of Na, Mg and Si and skin-adequate concentrations of P, Se and Zn. The samphire extract is claimed to significantly influence the synthesis of ceramides and that a concentration of 1% improves ceramide synthesis by approx. 70%. The peptide palmitoyl-gly-his-lys stimulates collagen and hyaluronic synthesis by the fibroblasts.

Other additives said to contribute to the efficacy of the composition include hydrolysed soy protein and a mixture of alcoholic extracts from green coffee beans, from the leaves of Camellia sinensis and Ponagamia pinnata and from the roots of Angelica archangelica. This mixture is said to have a strong antioxidant effect and to prevent free radical damage in skin cells.

Title: Cosmetic or pharmaceutical composition comprising peptides, uses and treatment processes

USP Application: 7,504,092

Serial Code & No **10/534,355**

Date of filing: **November 4, 2003**

Assignee: **ISP Investments Inc.**

Described is a peptide, with the sequence (AA)n-Arg-Gly-Ser-(AA)n, where (AA) is any amino acid or a derivative thereof and n=0 to 3, as an active ingredient in or for the preparation of a cosmetic, dermatological or pharmaceutical preparation. Also claimed is its use for the treatment of the effects of cutaneous aging and also against cellulite.

The peptide described is present in the composition at a concentration ranging from approximately 0.005 to 500 ppm, compared to the total weight of the final composition. The inventors claim that the composition, when topically applied to skin, has an effect on the modulation of ATP concentration in the skin cells, on the intracellular calcium concentration and also on the production and activation of proteins.

It is thought that by stimulating synthesis of extracellular matrix proteins essential for the healthy functioning of the skin, the skin will fight better against the phenomena of aging and promote its renewal by increasing cell proliferation and differentiation. The skin will also be able to better develop its repair process or to fight more effectively against UV damage.

While progressing towards the superficial layers, keratinocytes are flattened and discharge a cement made up of lipids, cholesterol, saturated free fatty acids and ceramides into the extracellular space. This cement increases cohesion between the cells and thus contributes to the barrier function of the skin. The peptide increases the function of the cutaneous barrier of the skin and thus promotes tissue regeneration. The energy reserve constituted by the peptide improves protein synthesis in skin cells and improves their stability, particularly in the epidermal layer.

Title: Cosmetic process for the treatment of the skin with sun-protection products and sun-protection product combinations

USP Application: **7,892,523**

Serial Code & No. **11/568,092**

Date of filing: **April 14, 2005**

Assignee: **Coty B.V.**

Claimed is a cosmetic method whereby skin is treated with various sun products and sun product combinations. The method is characterised by applying, prior to intensive exposure of the skin to UV radiation, a pre-sun product, then a sun product and finally repeatedly applying an after-sun product.

The pre-sun product comprises a radical interceptor obtained by extracting the bark of *Quebracho blanco* and subsequent enzymatic hydrolysis, plus caffeine in a complex with amino acid salts consisting of sorbitol, arginine-HCl, ornithine-HCl, tyrosine and SiO_2. It also includes an enzyme photolyase and UV endonuclease, both enclosed in liposomes, and an extract from *Corallina officinalis* with propylene glycol. The combination of caffeine/complex amino acid salts increases microcirculation and in addition, they

enhance the tan of the skin brought about by the UV radiation. This pre-sun product is applied several times a day from 7 to 2 days prior to intensive exposure to UV radiation.

The sun product comprises a UV filter combination of UVA and UVB filters providing an SPF between 8 and 30. The UVA filters are up to 3% by weight butyl methoxydibenzoylmethane and up to 0.5% by weight bis-ethylhexyloxyphenol/methoxyphenyl triazine. The UVB filters can be any in general use although ethylhexyl methoxycinnamate is preferred.

The after-sun product comprises components similar to those used for the pre-sun product albeit in different ratios and the Corallina extract is replaced with a cooling plant extract or mixture selected from the group consisting of water melon extract, or water melon extract, rose flower extract and jasmine flower extract.

Title: Compositions containing phenethyl aryl esters as solubilising agents for active organic compounds

USP Application: 7,691,363

Serial Code & No 10/859,533

Date of filing: June 2, 2004

Assignee: ISP Investments Inc.

An active or functional organic compound is solubilised in a phenylethyl ester to form a composition thereof. Representative active or functional organic compounds include personal sunscreens containing UVA/UVB absorbing compounds, such as avobenzone and benzophenone-3. Such compositions also show increased critical wavelength and UVA/UVB absorbance ratio performance properties. Preferably the active is solubilised in an amount of at least 20%, most preferably 30% w/w or more with the solubiliser.

The preferred phenylethyl esters are aryl carboxylic esters of 2-phenylethyl alcohol, e.g. 2-phenylethyl benzoate, 2-phenylethyl toluate or di-2-phenylethyl phthalate. Of these 2-phenylethyl benzoate appears to be the most preferred and is most effective as a solvent for avobenzone (Butyl methoxydibenzoylmethane) and benzophenone-3. It is also claimed to be an effective solvent for other UV absorbers and most of the currently approved ones are listed.

Other actives such as personal care, cosmetic, pharmaceutical, agricultural and industrial compounds are also effectively solubilised by 2-phenylethyl benzoate or related esters. It is used to keep the active in emulsion form without crystallizing or precipitating out of the emulsion and antibacterial and herbicidal compounds are listed in this regard.

The patent describes the preparation of phenylethyl esters in some detail and also gives the results of solubility trials on a variety of ingredients in 2-phenylethyl benzoate. These show that it solubilises at least 20% avobenzone and benzophenone-3 and tests to show its enhancement of UVA absorption are also described.

Title: Aqueous starch-oil dispersions having improved UV stability and absorbing ability

USP Application: **7,875,262**

Serial Code & No. **11/584,905**

Date of filing: **October 23, 2006**

Assignee: The United States of America, as represented by the Secretary of Agriculture

It is an object of the invention to produce sunscreen agents and a delivery system that have the advantage of being synthesised from natural materials, while providing value-added use for vegetable oils and starch. Claimed is a delivery system for UV-protective sunscreen agents, antioxidants, skin care agents, cosmetics and the like comprising feruloylated acylglycerols (FAG) and other cinnamate-modified vegetable oils (CMVO) incorporated in starch-based composites.

Droplets of a cinnamate-modified vegetable oil are uniformly distributed in a continuous starch phase in the absence of an external emulsifier. The starch phase consists essentially of completely disrupted starch granules and droplets of the CMVO are surrounded by a boundary layer separating them from the starch phase. The starch is selected from the group consisting of corn starch, wheat starch, rice starch, potato starch, and tapioca starch. Approximately 95% of the CMVO droplets have a diameter of less than about 10 microns and they represent up to 20% by weight of the composites.

Prior art describes an all natural sunscreen active ingredient derived from two natural plant components, ferulic acid and soybean oil (Compton et al., U.S. Pat. No. 6,346,236). The "green", enzymatic transesterification between the ethyl ester of ferulic acid, ethyl ferulate, and soybean oil produces a mixture of feruloylated acylglycerols (FAG) that comprise at least monoacyl- and diacyl glycerols that are the major constituents of an all natural, soy-based sunscreen.

Ferulic acid is a phenolic compound found esterified in higher plants and therefore is a common component of the human diet. The feruloyl moiety has strong UVA and UVB absorbance while the acylglycerol portion provides water resistance. It is claimed that these characteristics make feruloylated acylglycerols a natural replacement for commercially used petroleum-based sunscreen active ingredients. However initial trials to emulsify FAG into aqueous-based spray formulations using conventional surfactants have met with limited success. The inventors claim to overcome this difficulty by incorporating the FAG/CMVO into the starch-based formulations described. The starch-based matrix is readily dispersed in aqueous media while maintaining the UV absorbing efficacy of the CMVO.

The compositions are described as having unique properties which can be tailored to specific end uses by appropriate selection of the ingredients, proportions, and processing conditions. For the most part, these compositions hydrate rapidly and yield dispersions that are not only smooth and viscous, but also possess considerable lubricity. They may be readily formulated as lotions, creams, gel, sticks and powders and may also be formulated in combination with vitamins, antibiotics and antifungal agents.

3 Patents in which the theme is transdermal delivery systems but in which the approach to achieving this result is quite different.

Title: **Mixture for transdermal delivery of low and high molecular weight compounds**

Patent: USP 7,316,820

Serial Code & No 11/411,293

Date of filing: April 26, 2006

Assignee: JRX Biotechnology, Inc.

.Described is a transdermal delivery system that can deliver high molecular weight pharmaceuticals and cosmetic agents to skin cells. According to the applicants most transdermal delivery systems achieve epidermal penetration by using a skin penetration enhancing ingredient. While many of these enhance transdermal absorption, several possess certain drawbacks in that some are regarded as toxic, some irritate the skin; some have a thinning effect on the skin after prolonged use and all are incapable of delivering high molecular weight pharmaceuticals and cosmetic agents.

The delivery system described in the patent comprises an ethoxylated oil or fatty acid, fatty alcohol, or fatty amine having 10-19 ethoxylations per molecule. It is claimed that the system can deliver a wide range of pharmaceuticals and cosmetic agents having molecular weights of less than 100 Daltons to greater than 500,000 Daltons including low and high molecular weight peptides.

The ethoxylated lipid can be a vegetable, nut, animal, or synthetic oil or fatty acid, fatty alcohol, or fatty amine but the preferred oils include macadamia nut oil and meadowfoam (limnanthes alba) oil. Examples of the claims all include ethoxylated oil but other ingredients depend on the solubility of the active agent to be delivered. Some agents were soluble and stable in ethoxylated oil/alcohol emulsions or in ethoxylated oil/water emulsions, ethoxylated oil/alcohol/water emulsions or ethoxylated oil/alcohol/water/Aloe Vera emulsions. The systems described also include fragrances and ingredients that stabilise the formulation, facilitate delivery, or protect the active agent from degradation.

There are many suggested applications for both pharmaceutical and cosmetic applications. Among the latter are transdermal delivery systems to brighten the skin, reduce age spots or skin discolorations, reduce stretch marks, and reduce spider veins or to add dyes and tattoo ink and the suggestions include trade named actives to achieve these proposals. There are also details of clinical studies and ways of determining the depths of skin penetration in this very comprehensive (i.e. very long) patent.

Title: Topical and transdermal delivery system utilizing submicron oil spheres

Patent: USP 6,113,921

Serial Code & No. 09/006,446

Date of filing: January 13, 1998

Assignee: Pharmos Corp

Claimed is composition for topical or transdermal enhanced effect, which comprises droplets in the sub-micron size range of a water-insoluble agent in an aqueous dispersion system. The droplets consist of about 0.5 to 30% of an oily liquid including the oil soluble active agent, about 0.1 to 10% of an emulsifier and about 0.05 to 5% of

a non-ionic surfactant. Although aimed primarily at pharmaceutical compositions the agents described include vitamins A & E, peptides and retinoid, carotene and benzoyl peroxide.

The droplets are in the size range of between about 0.05 to about 0.3 microns and are in the form of an oil-in-water (o/w) emulsion thickened to be a semi-solid cream. A preferred viscosity enhancing agent is a physiologically acceptable high molecular weight compound such as a carbomer. The preferred emulsifier system is a phospholipid selected from the group consisting of lecithin, phosphatidylcholine and phosphatidylethanolamine. The surfactant may be a non-ionic alkylene oxide condensate of an organic compound which contains one or more hydroxyl groups, such as an ethoxylated alcohol or ester compound. In addition, a skin penetration enhancer such as DMSO or decyl dimethyl sulfoxide may be added.

The inventors claim that the system described is neither a micro-emulsion nor does it rely on liposome formation to achieve trans-dermal penetration, instead this is attained by forming sub-micron droplets in the emulsion. The preferred oil is a medium chain triglyceride such as caprylic/capric triglyceride, which may be mixed with other oils including soybean oil, cotton seed oil, olive oil, sesame oil and castor oil. The preferred surfactants are ethoxylated sorbitan esters such as polysorbate-20.

Title: Composition

Patent: USP 7,544,375

Serial Code & No 11/811,324

Date of filing: June 8, 2007

Assignee: Swiss Skin Repair, Inc

Claimed is a topically applied composition or cream for treatment of the skin comprising a skin plumper; a tetrapeptide; a soya plant extract; Centella Asiatica extract; a cosmetic soothing or anti-inflammatory component; a component that acts on fibronectin synthesis; a moisturising agent; a conditioning ingredient and a transdermal delivery agent.

The composition is for treatment of skin and its underlying tissue, for stretch marks and fine lines and wrinkles. The preferred skin plumper is palmitoyl oligopeptide at from about 0.0001 wt % to about 0.10 wt % of the total weight of the composition. The most preferred tetrapeptide is palmitoyl tetrapeptide-3 present at 0.01% or less by weight. The soya plant extract is a concentration solution of the effective ingredient saponin or sapogenol.

The Centella Asiatica extract is as an acid or salt and glycosylated derivatives thereof such as asiaticoside or madecassoside. The Centella Asiatica extract is said to have a modulating activity on connective tissue through an action on the fibroblasts and on two amino acids fundamental for the metabolism of the collagen: proline and alanine. It is present at about 0.5% and may be .referred to as a connective tissue modulator. The preferred cosmetic soothing or anti-inflammatory components are darutoside or rutin, incorporated at 0.1% or less.

The composition includes at least one active agent for stimulating dermal macromolecules or for preventing their degradation, especially those that act on fibronectin synthesis. Palmitoyl pentapeptide-4 is the most preferred and added at no more than 0.01%. The preferred moisturising ingredient is hyaluronic acid or its salts and carbomer

is the thickener of choice. There are other possibilities cited in the patents, each at their individual preferred levels.

Ceramide 2 is the preferred skin conditioning agent although a coacervate-forming composition comprising a cationic polymer, an anionic surfactant, and a dermatologically acceptable carrier for the polymer and surfactant is also favoured. Almost any recognised emulsifier system appears suitable.

The transdermal delivery agent preferably includes a lipoaminoacid or lipopeptide component selected from the group consisting of collagen oleoyltetra- and pentapeptide, capryloyl collagen aminoacids; myristoyl hydrolyzed animal protein, dipalmitoyl hydroxy proline, and palmitoyl collagen aminoacids. They deliver the active ingredients in liposome form. A typical liposome is composed of dimyristoyl phosphatidylcholine, dimyristoyl phosphatidylglycerol and cholesterol in a multilamellar configuration. The composition as a whole may be applied in the form of an emulsion, gel, solution or as a suspension

Continuing the theme of the Body Beautiful we have two patents about exfoliation and one containing a DNA repair enzyme.

Title: Emollient skin conditioning cream and method

USP Application: 7,749,523

Serial Code & No. 09/964,143

Date of filing: September 25, 2001

Assignee: Crabtree & Evelyn, Ltd.

Claimed is a cosmetic exfoliating composition for use in cleansing and conditioning the skin of the hands, face, heels, knees, elbows and body of a human being that is stable and does not leave a greasy or tacky after-feel when applied to and rinsed from skin with water and the skin is dried.

There are different compositions to treat the different areas but each essentially comprises an emollient mixture of oils and waxes, fatty alcohols, esters and acids; a mildly abrasive scrubbing agent and a surfactant and all are virtually non-aqueous. The emollient mixture may consist of macadamia seed oil; fatty acyl or alkyl group esters such as isopropyl myristate, sucrose distearate, and caprylic/capric triglyceride; the fatty alcohol is cetyl alcohol and the fatty acid is stearic acid. In addition the composition may contain shea butter and emulsifying wax.

The surface active agent is sodium cocoyl N-methyl taurate in the range 0.4 – 8% and calcium stearate is present to thicken the composition. The scrub agents vary according to the area to be treated; thus sodium chloride is used for the hands and pumice for the heels, knees and elbows. A starch material or vegetable flour may also form part of the abrasive system and in total this will represent from 15% to 40% of the composition.

The amounts of surfactant vary with the area of the body being treated; most preferably 0.7% to 1.3% by weight for the hand buffing composition; 4.0% to 6.0%, for the face and body buffing compositions; and 3.5% to 6.0%, by weight for the heels/knees/elbows buffing product.

For environmental and skin safety reasons, water-soluble inorganic salts, particularly sodium chloride, are preferred because they do not pollute the environment after the compositions are rinsed from the skin. Usually, a

material such as starch or a hydrolyzed starch will be present in cosmetic compositions containing the water-soluble inorganic salt particles to temper the perception of grittiness felt by users. Following is an illustrative formula from the patent.

Material	%w/w
Macadamia Temifolia Seed (nut) oil	35.6
Stearic acid	0.6
Shea Butter (Butyrospermum Parkii)	0.7
Caprylic/capric triglyceride	0.5
Isopropyl myristate	1.0
Cyclomethicone	0.4
Cetyl alcohol	0.2
Polawax (Emulsifying Wax) N.F.	1.0
Sucrose distearate	0.2
Behentrimonium methosulfate/cetearyl alcohol	0.5
Sodium cocoyl N-methyl taurate	0.7
Potassium stearate	0.1
Sodium chloride	25.0
Calcium stearate	15.0
Maltodextrin starch	5.0
Avena Sativa (Oat) Kernel Flour	1.0
Preservative mixture	

Title: Body scrub cosmetic composition

USP Application: 7,195,770

Serial Code & No. 10/238,321

Date of filing: September 10, 2002

Assignee: Basalt Works, LLC

Claimed is a cosmetic composition comprising basalt suitable for use as a body scrub to remove dead skin from the human body such as, for example, from the hands, feet, elbows, and knees. The patent utilises crushed basalt in association with sodium chloride and for added interest it includes natural and essential oils.

A preferred composition has 9% basalt; 55% sodium chloride; 18% Prunus amygdalus dulcis (sweet almond) oil and 1% each of Carthamus tinctonus (safflower) seed oil; Glycine soja (soybean) oil; Mentha piperita

(peppermint) oil; Mentha viridis (spearmint) leaf oil; Citrus grandis (grapefruit) peel oil; Rosmarinus officinalis (rosemary) leaf oil; Citrus aurantium dulcis (orange) oil and citrus medica limonum (lemon) peel oil. The composition also contains laureth-4 at 4%, sea salt at 5% and magnesium sulphate at 1%.

The inventors claim that the product is entirely natural, very efficient as an exfoliating scrub and is readily removed from the skin after use.

Title: Cosmetic composition and methods

USP Application: 7,959,953

Serial Code & No. 11/485,945

Date of filing: July 13, 2006

Assignee: Access Business Group Intnl.

Claimed is a cosmetic composition having ingredients that may prevent signs of aging, improve the aesthetic appearance of skin, and promote recovery from environmental stress. The composition comprises natural ingredients, including at least one ingredient or extract from Rosmarinus officinalis; at least one ingredient or extract from Centella, Echinacea, Alpinia or mixtures thereof; a DNA repair enzyme; and at least one pharmaceutically or cosmetically acceptable vehicle.

The inventors claim that there exists a need to provide an effective cosmetic composition based on natural materials. However, delivering a cosmetic benefit from natural sources and deriving a real benefit from such sources requires identification of specific plant and herbal extracts or ingredients, their minimum active concentrations, and their additive or synergistic activities in combination with other ingredients to impart anti-aging and skin improvement benefits.

Suggested topical compositions covered by the patent include extracts from Rosmarinus officinalis; Centella asiatica; Echinacea angustifolia; Alpinia speciosa and a liposome-encapsulated Micrococcus luteus N-glycosylase/AP lyase enzyme.

Active ingredients in Rosmarinus officinalis include ursolic acid, carnosol, carnosic acid, rosmarinic acid and oleanolic acid and are believed to restore the skin's collagen bundle structures and elasticity. Part of this activity appears to be attributed to ursolic acid and carnosic acid, which are thought to reduce the enzymatic activity of metalloproteinase enzymes responsible for breakdown of collagen and elastin. Ursolic acid is also believed to be a potent anti-inflammatory agent, to form oil-resistant barriers on the skin, and to improve the skin barrier function.

Centella asiatica is said to contain several active ingredients, including three triterpenes; asiatic acid, madecassic acid and asiaticoside. Centella agents are believed to act upon connective tissue, where they are thought to increase collagen and glycosaminoglycan synthesis, increase connective tissue remodelling and elasticity, modulate fibroblast activity and metabolism and act as an anti-inflammatory agent.

Additionally, the Centella triterpenes have been found to dose-dependently inhibit free radical-induced collagen degradation. Of the three triterpenes, asiaticoside has been found to induce collagen synthesis and to elevate enzymatic and non-enzymatic anti-oxidant activities of vitamin E, vitamin C, superoxide dismutatse, catalase,

and glutathione peroxidase. Centella also is believed to have anti-inflammatory properties and has been used traditionally for treating eczema and for minor itching and insect bites.

Total Echinacea extracts and echinoside, a caffeoyl derivative present therein, provide protective effects on skin connective tissue and are thought to enhance wound healing. Ingredients in Echinacea also are believed to possess anti-bacterial and anti-inflammatory activity and to reduce redness in skin or relieve conditions, such as eczema, insect bites and psoriasis. Alpinia species are believed to promote collagen synthesis and cell growth and to inhibit activity of the collagenase and elastase enzymes, which breaks down collagen and elastin.

A suitable DNA repair enzyme derived from a Micrococcus luteus cell lysate is provided in a liposomal formulation containing lecithin and water and is available with the trade name Ultrasomes from Applied Genetics, Inc. There are many variations and combinations included within the patent and reading the full text is advised to those interested.

The titles of patents are increasingly obscure about the purpose of those patents. The first two selected this month are for compositions to apply to the lips whilst the third is for a non-irritating sunscreen to be used in the area of the eyes.

Title: Preparation, in particular cosmetic preparation, and the production and use thereof

Patent USP 7,713,536

Serial Code & Appl. No. 11/189,255

Date of filing: July 26, 2005

Assignee: Schwan-STABILO Cosmetics GmbH

The patent suggests that conventional makeup items and lipsticks have the disadvantage that they can be easily transferred from the skin or the lips to other surfaces such as cups, glasses, and textiles. The patent claims to overcome these disadvantages by providing a composition in the form of a water-in-silicone emulsion that contains a wax, a suitable emulsifier, a volatile silicone oil, a moistening agent, a solid phase and water. In addition it may also contain the additives and adjuvant substances which are approved and usual in cosmetics. The preparation is suitable for decorative cosmetics such as lipstick, lip rouge, blusher, makeup, eyeshadow and foundation and may contain skin care or sun protection agents.

The wax has a dropping point between 70°C and 120°C and of the many mentioned pentaerythrityl tetrabehenate is preferred and represents up to 6% of the total composition. Various volatile silicone oils are thought suitable including pentacyclosiloxane and hexamethylsiloxane and are present at about 25%. Suitable emulsifiers include sorbitan sesquioleate, polyglyceryl-2-PEG-4 isostearate and cetyl PEG/PPG-10/1 dimethicone and these are generally present between about 3% and 6%.

The moistening agent is any humectant such as glycerin and various glycols that are usually found in cosmetic preparations at 3 – 5% and the solid phase comprises cosmetically approved pigments. Water is generally present at about 40% and it will also contain preservatives and water-soluble actives if desired. A colourless version is suggested as a covering for conventional lipstick after application to make it colourfast.

Title: Two-part cosmetic product

Patent USP 7,455,850

Serial Code & Appl. No. 11/020,612

Date of filing: December 23, 2004

Assignee: Avon Products. Inc

Claimed are two-part cosmetic products and methods for imparting a filling and swelling effect to skin, lips, hair, eyelashes and eyebrows. It has an anhydrous liquid or semi-solid first part with a water absorbent polymer and a water-based second part with a water soluble or dispersible film former. Optionally the anhydrous composition contains an oil absorbent polymer and preferably the product is wax-free.

The anhydrous composition, which is applied as a base coat, contains water absorbent polymers that are highly water absorbent and preferably will absorb and retain at least ten times their own weight in water, and most preferably retain at 20 or even more than 50 times their dry weight in water without dissolving in water. Such preferred polymers hold water within molecular chains, yet retain the absorbed water even under pressure. The principal superabsorbent polymer preferably used is crosslinked, partially neutralised polyacrylic acid.

The oil absorbent polymer absorbs and retains at least 50% of its own weight in oil and is selected from the group consisting of silicone elastomer, polyamide, lauryl methacrylate/glycol dimethacrylate crosspolymer, and combinations thereof. The anhydrous composition may also contain optical blurring materials, cosmetic pigments and dyes. Preferably, the anhydrous compositions have gel, silicone, oil, or solvent as a vehicle for the water absorbent polymer and the oil absorbent polymer. A representative gel is hydrocarbon gel, such as hydrogenated polyisobutene and a representative oil is polyglycerol diisostearate.

The water-based composition has a hydrophilic surfactant with an HLB value of at least 9.5; a film former and a humectant. It may be thickened with neutralised carbomer and contain preservatives and other materials to improve aesthetics and stability. It is applied after the base coat as an activator to make the water-absorbent polymer swell and it is claimed that the compositions provide instant wrinkle filling by the oil absorbent polymer, as well as a swelling effect by the water absorbent polymer and it also provides excellent feeling aesthetics from the hydrocarbon gel and silicone elastomer.

Title: Non-irritating compositions

Patent USP 7,910,090

Serial Code & Appl. No. 11/334,071

Date of filing: January 18, 2006

Assignee: Playtex Products

.Described is a base composition that includes an electrolyte, a pH buffer, a mild preservative and a lubricant, which allows for the formulation of non-irritating cosmetic and dermatological compositions. In particular the compositions are said to be non-irritating to mammalian eyes and the patent also describes non-irritating

photoprotective cosmetic and dermatological compositions that include the base composition and one or more sunscreen active components.

The electrolyte is selected from the group consisting of sodium chloride, potassium chloride, magnesium chloride, disodium EDTA and any combinations thereof but the preferred electrolyte is sodium chloride and the preferred buffer is trisodium citrate to give pH 6.0 to 7.6.

The preservative system chosen for its mildness is a well-known combination of phenoxyethanol, methylparaben, butylparaben, ethyparaben, propylparaben, and isobutylparaben. The lubricant is selected from the group consisting of glycerin, PEG-8, PEG-400, and any combinations thereof.

In a preferred embodiment of the present invention the base composition includes about 30% to 40 % electrolyte; about 3% to 10% buffer; about 15% to 28% preservative; and about 35 % to 50% lubricant, based on the total weight of the base composition. This base is then used to formulate cosmetic compositions that preferably have a buffer capacity, water-phase pH and water-phase osmolarity similar to that found in mammalian tears.

To prepare a sunscreen composition the base composition is used at about 2% to 4% with one or more sunscreen agents selected from the group consisting of ethylhexyl methoxycinnamate, ethylhexyl salicylate, homosalate, titanium dioxide, and any combination thereof, and they are present in an amount of 30% to 40% to give an SPF between 30 and 50. In addition to the base and sunscreen material the final composition may include one or more additional components in an acceptable carrier such as emulsifier, emollient, skin-feel additive, moisturising agent, film former, waterproofing agent, chelating agent or other materials to improve the aesthetics and stability of the product.

The patent has extensive explanations regarding reducing eye irritation and is illustrated with numerous combinations of the base composition with other materials and the results of eye and skin irritation tests.

Title: Medical herb composition for inhibiting shedding of a mammal's hair and method for preparing the same

US Patent: 7,838,048

Serial Code & Application No. 12/318,677

Date of filing: January 6, 2009

Assignee: Brion Research Institute of Taiwan

Claimed is a medical herb composition for reducing shedding of mammal hair that comprises: a first herb material selected from the group consisting of Ginseng Radix, Astragali radix, Batatatis rhizoma, Zizyphi fructus, Tremella, Codonopsis pilosula, or a combination thereof; a second herb material selected from the group consisting of Angelicae radix, Rehmanniae preparata radix, Longanae arillus, Lycii fructus, Paeonia lactiflora, or a combination thereof; and a third herb material selected from the group consisting of Rehmanniae radix, Ligustrum lucidum, Eclipta prostrata, Dendrobium hancockii, Polygonum multiflorun, or acombination thereof.

The composition is claimed to reduce shedding of mammal hair, promote the growth of hair, and to improve vitality, skin condition, and complexion and the preferred materials are Astragali radix; Angelicae radix and a combination of Rehmanniae radix, Ligustrum lucidum, and Eclipta prostrate. The herb materials are obtained by spray drying, freeze drying or extracted using alcohol or water.

In the preamble the patent states that according to traditional Chinese herb material science theory, it is considered that: the human kidney is the root of innate endowment, and the essence is hair. Therefore the growth and shedding process of human hair reflects the exuberance and debilitation of the essential qi in the kidney. Alopecia may be a signal of kidney deficiency and blood deficiency occurring inside the body.

The herbal composition described is for a preparation to be taken orally and various excipients and accompanying materials are mentioned but it could be of interest as a topical composition based solely on natural materials.

Title: Method for promoting hair growth

US Patent: 7,556,825

Serial Code & Application No. 10/840,908

Date of filing: May 7, 2004

Assignee: Anticancer, Inc

Claimed is a method for targeted and specific delivery of beneficial compounds to hair follicle cells using liposomes encapsulating the active ingredients. Particularly preferred methods describe delivery of hair dyes, melanin or tyrosinase to the hair follicle for the purpose of improving hair colour or condition and the delivery of compounds which prevent alopecia or stimulate hair growth.

According to the inventors it was not appreciated that liposomes could be used to direct beneficial compositions preferentially to hair follicles. Liposomes are typically formed by mixing dry phospholipids with aqueous solutions giving rise to bilayers of phospholipid molecules which arrange spontaneously to form close multilayered spherules.

As they form, the liposomes entrap liquid and any soluble solutes that are present. A large number of substances that do not interfere with the formation of the liposomes can be incorporated, regardless of solubility, electrical charge, size and other structural characteristics and liposomes have been successfully used for delivery of different low-molecular-weight water-soluble and oil-soluble compounds into different cells.

Liposomes can selectively target the hair follicle with potentially beneficial compounds. The patent describes the results obtained by the inventors that show liposomes selectively deliver compounds to the hair follicle thus enabling the compounds to cross the stratum corneum and be delivered directly and selectively to the cells in the hair follicle without entering into other cells, such as other cells in the skin or the blood stream.

In preferred embodiments, the beneficial compound is a hair colour-restoring agent such as melanin, hair dye, or tyrosinase or a hair growth stimulator such as cyclosporin-A, or related compounds, finesteride, or an antisense nucleic acid molecule that would block a gene conferring a negative effects to the hair.

The liposome compositions typically comprise about 0.1 mg to about 3 mg of protein, or about 0.1 ug to about 0.5 mg nucleic acid, per mg of phospholipid mixture. Preferred are compositions that additionally comprise from about 0.5 to about 1.5% (w/v) glycine. Where it is desired to be able to lyophilize the liposome composition to allow storage and later reconstitution, the reagent preferably includes a cryopreservative, preferably trehalose. A particularly preferred liposome composition comprises a mixture of phospholipids and a cationic phospholipid and is pH sensitive.

The preferential targeting of a liposome composition to the hair follicle can be optimized by the choice of phospholipids in the liposome composition, and may depend additionally on the included beneficial compound. Optimization can be readily conducted by use of *in vitro* histoculture by preparation and testing of a panel of preselected liposome formulations. The patent describes these procedures in great detail with example liposome formulations and their effects on cultured tissues and human subjects.

Title: Probiotic containing anhydrous hair care composition

US Patent: 7,374,750

Serial Code & Application No. 10/845,931

Date of filing: May 14, 2004

Inventor: Albano; Jennifer

Claimed are nutritive and restorative hair care compositions that are distinctive in that they contain probiotic bacteria and other ingredients found in yogurt. The compositions are designed to moisturize, soften, condition, straighten, strengthen and repair hair in addition to promoting a healthy scalp.

It is claimed that yogurt can be used topically on hair with considerable benefit and much like the milk from which yogurt is derived, yogurt contains particular proteins and a significant amount of lactose. In addition, both yogurt and milk contain emollient properties that contribute to healthy and attractive hair.

Two proteins which exist in yogurt and are likely to be responsible for its benefits to hair are casein and whey. Whey protein is rich in certain amino acids and low in fat and the key amino acids, leucine and isoleucine, valine, and cysteine can be found in relatively high amounts in whey protein. The precipitated casein in yogurt has the ability to form aggregates in the presence of charged surfaces. If the pH is less than 5, it reduces the ionization of serine phosphate residues and encourages agglomeration, which is the first step leading to intermolecular and intramolecular cross links.

The probiotic bacteria are selected from the group consisting of Lactobacillus rhamnosus, Lactobacillus casei, Lactobacillus plantarum, Lactobacillus acidophilus, Rifidobacterium longum, Bifidobacterium breve, Pedicoccus acidlactlci and Lactococcus diacetylactis. These can be cultured in yogurt and added to hair care compositions.

One composition described in the patent is anhydrous, which protects the viability of the probiotic bacteria that have a very short shelf life if exposed to water. The composition is liquid and based on PEG 200 at about 75%, glycerine at about 5% and contains various cationic conditioning agents plus concentrated whey protein and the probiotic bacteria from yogurt. A water-based composition is also described plus many variations on the two typical formulations,

Title: Epilatory compositions

US Patent: 8,038,723

Serial Code & Application No. 12/448,716

Date of filing: February 19, 2008

Assignee: Reckitt & Colman

Described is an epilatory composition comprising a gel-like matrix material, for example a rosin-based or sugar-based material, and mixed with the matrix material, colloidal particles of fumed silica and a polyethylene in the form of a homopolymer. The particles reduce the tendency of the epilatory composition to flow, under warm ambient conditions with improved efficacy over known epilatory compositions.

The fumed silica is present in an amount up to 10% wt/wt but preferably forms about 2% of the epilatory composition and the polyethylene is present in the range 0.1% to 5% by weight of the composition although about 1% is particularly preferred.. The rosin forms at least 60% but more likely at least 80% of the total composition, which is provided as flat strips between sheets of cellophane that can be peeled away.

It is believed that the particles form a network throughout the epilatory composition, providing a structure or backbone which inhibits its flow at warm temperatures. Other components may include one or more of a natural wax, a fragrance, a polymer, an essential oil, silicone oil, a colorant, an anti-oxidant or a paraffin or mineral oil.

In use, the user peels away one of the cellophane sheets, presses the epilatory strip firmly onto the area to be plucked, then pulls one end of the remaining sheet sharply away from the area. The hairs trapped in the composition are removed from the treated area along with the composition still attached to the remaining backing strip. The strips can be readily applied to the skin at body temperature and are very efficient at removing hairs from the skin and, surprisingly, the user experiences little pain, say the inventors. An illustrative formula follows.

Ingredients	% wt/wt
triethylene glycol rosinate	64.777%
Glyceryl rosinate	31.803%
Silica	1.95%
Polyethylene	1.05%
Perfume	0.3%
BHA	0.01%
Cosmetic Ingredient	0.1%
Dye	0.014%

Title: Pre-shave compositions and methods of using same

US Patent: 8,030,260

Serial Code & Application No. 11/879,039

Date of filing: July 13, 2007

Assignee: Chemsil Silicones, Inc

Described are pre-shave compositions that include at least 50% by weight of a polyalkylene glycol component and additional ingredients to benefit the area of the body to be shaved. The compositions are substantially clear and anhydrous and generate heat when in contact with water. The composition also includes a cationic surfactant, a natural oil and polyvinylpyrrolidone.

It is claimed that it is highly advantageous to have two polyalkylene glycols of differing molecular weights, the relative proportions of which are controlled to provide substantial benefits to the present compositions. The molecular weight difference between the two portions is preferably 100 or more. For example one named

material is PEG 400 with a molecular weight of about 350 to 450 and the second material is PEG 200 with a molecular weight between 150 and 250. These polyethylene glycols may represent in total over 90% by weight of the total composition.

Viscosity is given by the inclusion of polyvinylpyrrolidone, which is effective in providing controlled increases in viscosity at relatively low concentrations while, at the same time, providing an increase in lubricity to the compositions. The cationic surfactant may be selected from a wide range of such materials although cetrimonium bromide and disoydimonium chloride may be preferred and included at about 3% by weight. The choice of natural oil is also extensive and one or more may total 2% to 5% of the total composition.

The pre-shave compositions show an increase in temperature upon exposure to moisture from the skin, without causing undue irritation or harm to the skin surfaces. This warming occurs by the exothermic release of energy generated upon exposing the compositions to water. The temperature increase advantageously falls within a comfort range to no more than that perceived as too hot, without causing irritation or other harm to the skin or mucosa.

The compositions may also include a variety of ingredients such as fragrances, colorants and skin conditioners and mixtures thereof. Other optional ingredients are plant extracts such as aloe, witch hazel, chamomile, hydrogenated soy oil and colloidal oatmeal and vitamins A, D or E.

Title: Personal care compositions

US Patent: 8,029,812

Serial Code & Application No.

Date of filing: March 9, 2009

Assignee: E. I. du Pont de Nemours and Co

This patent relates to personal care compositions containing polytrimethylene ether glycol in a variety of physical forms including solutions, gels, oil-in-water emulsions, water-in-oil emulsions, suspensions and solids. In a particularly preferred embodiment, the polytrimethylene ether glycol is derived predominantly from monomers obtained from renewable resources, making the personal care products of this embodiment of the present invention more environmentally friendly in terms of their manufacture, use and disposal.

The possible personal care applications are extensive and include hair products, cleansing products and shave products. Preferably they are in the form of an emulsion and the continuous phase may contain about 20% of polytrimethylene ether glycol.

Alkylene glycols such as 1,2-propylene glycol, ethylene glycol and glycerol are used in personal care applications as humectants and emollients. Polymers such as polyethylene glycol (PEG), poly-1,2-propylene glycol (PPG), and block copolymers of ethylene oxide and propylene oxide, are also widely used in personal care products. The applicants claim that these materials are synthetic and derived from petrochemical sources and that recent trends are to provide products to consumers that are natural with reduced petroleum-based product content and reduced environmental impact.

Polytrimethylene ether glycols are preferably prepared by poly-condensation of monomers comprising 1,3-propanediol resulting in polymers or copolymers containing trimethylene ether repeating units. The most

preferred source of 1,3-propanediol is via a fermentation process using a renewable biological source such as corn feed stock. Both bacteria and yeasts can convert glucose, e.g., corn sugar, or other carbohydrates to glycerol. Bacterial strains able to convert glycerol into 1,3-propanediol are found in the species Klebsiella, Citrobacter, Clostridium, and Lactobacillus so this dual biological process provides a rapid, inexpensive and environmentally responsible source of 1,3-propanediol monomer.

Polytrimethylene ether glycols by themselves may be used as clear gels and are able to provide slip and emolliancy. They are able to be mixed with water but still provide a gel structure, which is non-flowable at ambient temperatures but flowable above 35°C so they liquefy on contact with human skin. Other ingredients added to this gel composition are preferably added after gel formation. The retention of water by polytrimethylene ether glycol by gel formation allows it to serve as a moisturizing vehicle that is easily washed off with water from skin.

Depending on their molecular weight polytrimethylene ether glycols may be oil-soluble or water-soluble. The water-soluble ones may form part of the aqueous phase of o/w emulsions and oil-soluble examples may form part of the oil phase in w/o emulsions. In either case the oil phase comprises at least one member selected from the group consisting of paraffin oil, vegetable oil, macadamia nut oil and wheat germ oil and isostearyl neopentanoate. Additives normally found in personal care products are added to transform these simple vehicles into performance related products.

Title: Composition and methods for skin care

US Patent: 8,034,788

Serial Code & Application No. 11/914,093

Date of filing: May 10, 2006

Assignee: Dermipsor Ltd.

Claimed are compositions for the treatment of skin atrophy and to improve skin appearance and texture by the topical administration of vitamin D3 or specific vitamin D3 analogs, either on their own or in combination with cyclic adenosine diphosphate ribose (cADPR) and/or nicotinamide. The compositions are particularly effective in preventing and treating signs of chronological and photo-aging including fine lines, wrinkles and skin discoloration.

The preferred composition comprises calcipotriol, a vitamin D3 derivative, nicotinamide and cADPR present in amounts which, in combination, are sufficient to prevent, retard, arrest, or reverse atrophy in the skin of the subject and are topically administered in a dermatologically acceptable carrier.

In the skin Vitamin D is synthesized photochemically from 7-dehydrocholesterol and is removed by a vitamin D-binding protein. Experimental evidence shows that vitamin D is anti-proliferative and stimulates the terminal differentiation of keratinocytes. In psoriatic lesions, epidermal keratinocytes exhibit hyper-proliferation and impaired differentiation triggered by inflammation and this condition may be treated with calcipotriol. The applicants have discovered that in association with nicotinamide and cADPR, it is effective in preventing, attenuating and treating the symptoms associated with cutaneous aging.

The patent is illustrated with formulations, the active ingredients of which are about 0.1 mu.g/g to about 100 mu.g/g calcipotriol; about 0.5 mg/g to about 3 mg/g nicotinamide and about 5 mu.g/g to about 27 mu.g/g cADPR. Extensive in-vitro and in-vivo testing on human subjects is described.

Title: Glyceryl and glycol acid compounds

US Patent:

Serial Code & Application No. 11/749,869

Date of filing: May 17, 2007

Assignee: Mary Kay Inc

Claimed are compositions comprising a glyceryl salicylate or a glycol salicylate compound, which can be used to reduce the amount of moisture evaporated from skin, to protect the skin from UV light and to treat aged or damaged skin. The salicylate is present at from: 0.001% to 20% by weight and the composition, which also contains at least one of a vitamin, a mineral, an essential fatty acid, an amino acid, a flavinoid or a protein.

The compositions can be used to exfoliate the skin, which encourages the skin's natural sloughing process allowing the user to shed dead skin cells. The shedding process unclogs pores, keeps skin clean and helps reduce acne breakouts and an advantage of this process is that it reveals and exposes younger looking, fresher skin.

The compounds can also lubricate the skin and can form a film or barrier on the outer surface, which can reduce or prevent the evaporation of water from the skin. The film can have tactile properties that makes the skin feel soft or smooth. They can also be used as UV absorption agents and can be used in methods for increasing the UV absorption characteristics of a sunscreen composition. As UV absorption agents the compounds can also be used to protect the cosmetic composition from chemical or physical deterioration induced by ultraviolet light.

Examples from the patent include the use of glyceryl salicylate at 7.5% in an exfoliating composition, at 5% in a moisturiser and at 2% in a sunscreen composition with other UV absorbers. Methods of testing the efficacy of these formulations are described at some length although test results appear to be lacking.

Title: Sunscreen composite particles dispersed in water-in-oil cosmetic compositions

US Patent: 7,914,772

Serial Code & Application No. 12/164,136

Date of filing: June 30, 2008

Assignee: Conopco, Inc.

Claimed is a cosmetic water-in-oil emulsion composition that includes composite particles of a sunscreen agent and a condensation polymerised polyamide binder, an emulsifying silicone surfactant, an oil phase and a water phase. The composition exhibits relatively high SPF while maintaining excellent soft focus properties that hide skin imperfections.

Two examples of the preferred polyamide binder are polyalkyleneoxypolyamide (PAOPA) and ester-terminated polyester-amide (ETPEA) resins. The preferred UV absorbers are ethylhexyl methoxycinnamate and benzophenone-3 and mixtures thereof and they are present with the binder in an optimal ratio of 1.1 to 1.3 by weight, absorber to binder. The particles comprise from about 4% to about 10% of the total composition and they have an optimal size of from about 200 to about 1000 nm. The sunscreen agents can either be dispersed throughout the polyamide resin binder or can be formed as a core surrounded by binder with dispersal throughout the binder being preferred.

A wide variety of silicone surfactants are described and they are typically non-crosslinked organically modified organopolysiloxanes such as dimethicone copolyols of which PEG-10 dimethicone is most preferred at a level between 1.5% and 5%. The aqueous phase can be water, or a combination of water and one or more water-soluble or dispersible ingredients. Examples are thickeners, acids, bases, salts, chelants, gums, water-soluble or dispersible alcohols and polyols, buffers, preservatives, and colorants and in total the aqueous phase represents 45% to 60% of the total composition.

The continuous oil phase may range from about 30% to about 60% by weight of the composition and typical components include silicones, silicone elastomers, hydrocarbons, triglycerides and combinations thereof.

To provide or improve the soft focus effect the compositions may contain one or more additional particulate materials, including coloured and uncoloured pigments, interference pigments, inorganic powders, organic powders, composite powders, optical brightener particles, and combinations thereof. Particulate materials are preferably from about 0.1% to about 5%, by weight of the composition and particularly preferred are spherical powders with an average primary particle size of 0.2 to 30 microns.

Many possible additional ingredients to improve aesthetic and shelf life properties are cited in the patent and it is illustrated with example formulations and the soft-focus effect and SPF are measured and the results of each given.

Facial wrinkles and methods of alleviating their appearance continue to be the focus of skin care cosmetic companies. What follows are three patents that claim to improve the appearance of wrinkles, without irritation or unwanted side effects.

Title: Emulsion cosmetic compositions containing resveratrol derivatives and linear or branched silicone

US Patent: 8,080,583

Serial Code & Application No. 12/127,439

Granted: December 20, 2011

Assignee: ELC Management LLC

Claimed is a cosmetic composition comprising at least one resveratrol derivative, a water phase, and an oil phase containing at least one linear or branched volatile silicone and a method for delivering active resveratrol to the skin.

Resveratrol, also referred to as 3,4',5-trihydroxystilbene, is a polyhydroxy-substituted compound present in red grapes, raspberries, blueberries, and certain other plant berries or extracts. It has been reported that resveratrol has anti-aging, anti-cancer, and antiviral effects and has been incorporated into a variety of cosmetic formulations such as skin creams. However, it is generally unstable in cosmetic formulations and it can only be used in very small amounts. If present in too large an amount the resveratrol will hydrolyze and cause the cosmetic formulation to become discoloured.

It has been discovered that esterifying resveratrol with inorganic acids, organic carboxylic acids, or reacting the hydroxyl groups to form alkoxy substituents or glycosides, provides resveratrol derivatives that are stable in cosmetic emulsions and enable formulation of cosmetic products with the aesthetics and stability that are necessary for commercially successful products. Once the cosmetic composition is applied to skin enzymes that are present in skin hydrolyze the ester, releasing resveratrol in its active form.

A preferred form of resveratrol is 3,4',5-triphosphate stilbene, also referred to as a resveratrol triphosphate ester but many other possibilities are named including resveratrol ferulates, which can be formed by combining ferulic acid with resveratrol in an aqueous medium. Whichever ester is used it may be incorporated in the composition at up to 20% by weight.

The emulsion contains a linear or branched volatile silicone such as the cyclomethicones or hexylmethyl disiloxane and methyl trimethicone. It may also contain non-polar ingredients typical of cosmetic emulsions and the patent names almost every silicone derivative, hydrocarbon and other materials that may be used in cosmetics. The aqueous phase as described may also contain every ingredient likely to be found in a cosmetic product and the emulsion is formed using either silicone surfactants or non-ionic surfactants.

Title: Anti-aging cosmetic composition

US Patent: 8,084,062

Serial Code & Application No. 12/654,635

Granted: December 27, 2011

Assignee: Amorepacific Corp. Korea

Claimed is an anti-aging cosmetic composition containing Hibiscus esculentus extracts and at least one ingredient selected from the group consisting of oleanolic acid, ursolic acid, glycyrrhetinic acid and retinol, to provide a wrinkle-improvement effect.

The patent claims that Hibiscus esculentus extracts improve skin wrinkles by inhibiting muscle contraction and removing oxygen free radicals. When used in conjunction with active ingredients selected from oleanolic acid, ursolic acid, glycyrrhetinic acid and retinol, the composition improves skin wrinkles generated by aging.

Hibiscus esculentus extracts comprise a mixture of oligopeptides with an average molecular weight of 262 Da (Dalton), and the content of the oligopeptides complex is preferably 0.00001.about.10 wt % based on the total weight of the composition.

The oligopeptides complex removes free radicals that reduce the function of bio-molecules contributing to skin elasticity, and thereby protects skin from biological oxidation. In addition, it can improve skin wrinkles by

increasing collagen synthesis, which leads to an increase of elasticity. Further, it has effects on muscle contraction of facial muscles, which are used when people make a facial expression such as smiling or frowning.

The Hibiscus esculentus extracts are commercially available oligopeptides trade named Myoxinol [INCI: Hydrolyzed Hibiscus esculentus extract] manufactured by Laboratoires Sérobiologiques. According to the patent oleanolic acid, ursolic acid, glycyrrhetinic acid and retinol are each preferably contained in an amount of 0.00001.about.10 wt % by weight although illustrative formulae show these materials being used at comparatively low levels.

There are numerous examples of topical compositions plus the clinical tests used on 140 female subjects to prove effect.

Title: Antiwrinkle agent and skin cosmetic composition

US Patent: 8,084,064

Serial Code & Application No. 12/500,054

Granted: December 27, 2011

Assignee: Kao Corporation

Claimed is an antiwrinkle agent and skin cosmetic composition containing a sclareol derivative having excellent alleviating effects on wrinkles appearing due to aging, and especially at exposed locations of skin.

As aging of the skin progresses, its defence against stimulation such as oxidation stress weakens and this is seen in particular on skin exposed to ultraviolet radiation and other forms of strong oxidation stress. This type of change in the skin is referred to as photoaging, and skin affected in this manner demonstrates thickening of the epidermis, and a reduction in collagen which is a major constituent of the dermis. Consequently, an aesthetically displeasing state results such as the formation of deep, large wrinkles.

As a result of conducting extensive studies the inventors of the present invention confirmed that specific Salvia scarea Lamiaceae (sclareol) derivatives, particularly a hydrogenated sclareol obtained by reducing an alkenyl group of sclareol, and an acylated sclareol obtained by acylating at least one of the hydroxyl groups of sclareol, has superior safety as compared with sclareol, and a skin cosmetic composition formulated therewith at 0.1 to 5% has excellent safety and excellent wrinkle alleviating effects.

The patent describes methods of obtaining extracts of Salvia sclarea and of derivitising the sclareol content. It also described tests to prove its anti-wrinkle efficacy and safety in use and is illustrated by the following formula.

Ingredient	**% by weight**
Olive oil	10.00
Isopropyl myristate	1.00
Polysorbate-20	0.50
Sorbitan monolaurate	0.50
Propylene glycol	1.00
Glycerol	2.00

Methyl paraben	0.10
Ethanol	7.00
Hydrogenated sclareol OR Dioctanoylated sclareol	1.00
Water, d	To 100%

Protection against solar radiation continues to be one of the most important aspects of human skin care. These three patents include one on improving delivery from pump-action spray dispensers; one on improving the solubility and stability of UV-A sunscreens and one on a potential new UV-A absorber.

Title: Cosmetic composition containing microcrystalline cellulose

US Patent: 7,815,924

Application No. 10/528,317

Date Granted: October 19, 2010

Assignee: FMC Corporation

The ability of pump-driven delivery systems to deliver a cosmetic composition as a finely divided spray is critically dependent upon the rheology of the cosmetic composition, particularly its viscosity at the exit port of the spray pump. As the viscosity of the composition decreases at the exit port, the spray pattern becomes more divided and produces a more desirable delivery by evenly covering a large area. Conversely, as the viscosity increases, the spray pattern becomes less divided and more stream-like, yielding a less desirable delivery, either by covering only a small area or by unevenly covering a larger one.

Sunscreen compositions having low viscosity at high shear rates tend to be easy to spread on the skin and can produce more even coverage and, hence, higher sun protection factors. However, these compositions have a number of deficiencies. They tend to drip or run after application and thus need to be spread immediately after application.

Other problems with spray-type formulations are that stable oil-in-water emulsions are difficult to prepare at very low viscosities and it is difficult to achieve good long term suspension of inorganic sunscreen agents, such as titanium dioxide or zinc oxide.

In order to overcome these drawbacks, claimed is a spray-type cosmetic composition that comprises one or more sunscreen agents plus emulsifiers; emollients; a rheology control agent and water. The rheology control agent is microcrystalline cellulose. When sprayed on the skin or hair the composition produces a fine mist that deposits evenly with no dripping and without forming aggregates.

The sunscreen agent may be an organic or inorganic sunscreen agent or a mixture of these to provide an SPF of at least 12. The basic composition can be any suitable sunscreen formulation with a very low viscosity and which meets the legislative and aesthetic requirements of such compositions. The rheology control agent is a water-dispersible mix of about 85% microcrystalline cellulose with an average particle size of below 10 microns and

about 15% of the sodium salt of carboxymethylcellulose. The viscosity of the final composition at high shear is 80 Pa-s or less.

The assignees believe that microcrystalline cellulose forms a three dimensional network of sub-micron sized insoluble rod-like particles, which imparts physical stability to an emulsion at low shear rates but which rapidly shear thins to form a low viscosity mist when subjected to high shear such as when spraying.

Title: Personal-care composition comprising oil-soluble solid sunscreens

US Patent: 8,088,364

Application No. 12/728,183

Date Granted: January 3, 2012

Assignee: The P&G Co.

Claimed is a sun screen composition in the form of a water-in-oil emulsion that comprises at least 10% of a non-polar silicone oil; from about 0.1% to about 10% of a first oil-soluble solid sunscreen; and from about 0.1% to about 10% of a second oil-soluble solid sunscreen.

The first sunscreen may be oxybenzone [EU name: Benzophene-3] and the second sunscreen may be avobenzone [EU name: Butyl methoxydibenzoylmethane] present in a ratio of 0.8 to 2.0, or 1.0 to 1.5. These ratios appear to be critical. The composition may further comprise a skin-care active selected from the group consisting of a vitamin B3 compound, a sugar amine, a peptide, a hexamidine compound, and combinations thereof.

The non-polar silicone oil is selected from the group consisting of cyclomethicone, dimethicone, and mixtures thereof and it forms between 10% and 40% by weight of the final composition. The addition of silicone oils causes solubility problems that affect the UV absorbers, particularly UV-A absorbers, which are solid. The applicants claim that there is a need to improve the solubility in silicone oil of solid UV-A blocking sunscreens without the addition of more solvent, so that even at high concentrations or temperatures the solid sunscreens do not separate out of the oil phase. Further, there is a need to provide a sunscreen composition with a pleasant skin feel and sufficient UV blocking.

It is claimed by the applicants that the solubility of avobenzone tends to increase in the presence of oxybenzone and that more oxybenzone may be used in a composition in place of a sunscreen solvent. This approach may provide higher UV-A efficacy, with better skin feel, and without crystallization issues.

The compositions may contain other sunscreen agents and polar and non-polar oils. The emulsifying system is not specified and additional ingredients may be drawn from an extensive range of typical additives to be found in sun care compositions.

Title: Ionic UV-A sunscreens and compositions containing them

US Patent: 7,897,779

Application No. 10/589,051

Date Granted: March 1, 2011

Assignee: DSM IP Assets B.V.

Claimed are 1,4-dihydropyridine derivatives and compositions containing these them for photo-protecting human skin and hair against solar radiation. The applicants identified a need for UV-A sunscreens which are water-soluble, which have an absorption maximum between about 350 to 370 nm, and have extinction values (E values) of 900 or more preferably, 1000 or more.

The compounds cited in the patent protect the skin and hair against UV-A radiation and can be complemented by other UV-A sunscreens in the organic phase thus giving rise to higher sun protection. The compounds can easily be incorporated into different cosmetic compositions, and show protection against a longer wavelength than other known UV-A sunscreens. It is said to be an advantage that they show higher extinctions than other known water-soluble UV-A sunscreens and in particular have better E-values than the present commercially avaialble water-soluble UV-A sunscreens, thus giving better protection. The 1,4-dihydropyridine derivatives additionally show excellent photostability and also stabilise emulsions and can therefore serve as co-emulsifiers.

The preparation of 1,4-dihydropyridine derivatives is described in detail and compositions to contain them include all ingredients normally to be found in cosmetic preparations in general and sun protection compositions in particular.

Sunless tanning products are growing in popularity. They are generally based on dihydroxyacetone (DHA), which reacts with amino acids present in the sebum and stratum corneum by the Maillard reaction to give a brownish colour. Unfortunately the distribution and nature of the amino acids is not uniform on the skin surface and because of that the intensity and shade of the colour obtained may vary thereby causing the skin to have an unnatural look. Another drawback of DHA is the length of time the coloration takes to develop thus there is a demand for fast-acting self-tanning products which give a coloration closer to that of a natural tan. Following are four patents that claim to offer improved compositions for sunless tanning.

Title: Sunless tanning composition and method of sunless tanning

US Patent: 7,378,084

Serial Code & Application No. 11/174,044

Date Granted: May 27, 2008

Assignee: Playtex Products, Inc

Claimed is a sunless tanning composition having dihydroxyacetone (DHA) and an amphoglycinate, which is said to provide fast development of a uniform, more intense, long-lasting and natural looking tan. Amphoglycinates are also known as amphoacetates and particularly preferred is sodium cocoyl amphoacetate and the sodium salts of oliveamphoacetate; sunflowerseed amphoacetate; cocoabutter amphoacetate; sesame amphoacetate and sweet almond amphoacetate. It is claimed that if one or more of the amphoacetates is added to the vehicle containing DHA they improve such sunless tanning preparations.

Depending on the concentration of the active, colour development starts within 4-6 minutes after the composition is applied. This is much faster than colour development provided by the combination of DHA and polyamines that typically starts within 30 minutes. It is also claimed to provide a uniform and natural looking sunless tan over all treated skin surfaces at a rate faster than known formulations. In addition, amphoglycinates, especially

sodium oliveamphoacetate, have good foaming capabilities; they respect the integrity of skin's hydrolipid barrier, and are extremely mild and non-irritating to the skin in human patch tests.

To reduce the likelihood of a reaction between the amphoacetates and DHA prior to use they are provided as two component systems; one containing up to 10% DHA and one containing one or more amphoglycinates up to a total level of 30% that can be mixed at the time of use or be applied successively to the skin, as a leave on or a wash-off formulation, one after the other.

Title: Glow and sunless tanning colour enhancement by cationic copolymers

US Patent: 7,780,954

Serial Code & Application No. 12/128,642

Date Granted: August 24, 2010

Assignee: Conopco, Inc

Claimed is a cosmetic composition for sunless tanning or imparting glow to skin that includes from about 0.5% to about 10% by weight of the tanning agent, DHA, and from 0.5 to 10% by weight of a crosslinked cationic copolymer, preferably distearyl dimonium chloride. The crosslinked cationic copolymer is a colour enhancing agent which improves colour intensity and avoids streaking of the developing tan or glow.

It is claimed that the combination of a tanning agent and the cationic copolymer deliver a more intense colour to the treated area of skin. Substantivity is enhanced and resistance to the composition being washed-off or sweated off is improved. Formulations intended for imparting glow or radiance utilise DHA from 0.5 to 2.5% by weight whereas to impart a deep colour up to 20% DHA may be required.

The claimed composition is supplied as an emulsion with an optimal water content of 35% to 65% by weight. The oil content may include both volatile and non-volatile silicone oils, natural or synthetic esters and hydrocarbons and comprise preferably between about 1% and about 50% by weight of the composition. The emulsion is stabilised with non-ionic surfactants and thickened with suitable rheology modifiers. Polymeric porous spherical particles such as methyl methacrylate cross-polymer may be incorporated and may comprise about 2% of the composition.

Natural extracts, alpha hydroxy acids, retinol compounds and other active materials may also be present and preservatives, colorants, perfume and other materials may be incorporated to improve its shelf life and aesthetic properties.

Title: Sunless tanning products and processes

US Patent: 6,706,257

Serial Code & Application No. 10/024,822

Date Granted: March 16, 2004

Assignee: Discovery Partners, LLC

Claimed is sunless tanning compositions may be substantially improved by adding methylsulfonyl methane [MSM] sequentially or simultaneously to compositions containing dihydroxyacetone. More specifically the patent claims a self-tanning formulation comprising: 1%-20% MSM; 0.5%-20% DHA and least one solvent that

is shelf stable, safe for human skin application and that dries relatively quickly and is non-greasy. It may be selected from at least one member of the group consisting of water, ethanol and volatile silicones.

Preferably the MSM is present at 5% and the pH of the composition is adjusted to be from pH 3 to pH 6 although examples show the pH range to be at the lower end of the scale. The applicants found that MSM enhances the performance of DHA containing self-tanning compositions when used sequentially, simultaneously, or subsequently in conjunction with DHA. MSM does not react chemically with DHA and appears to facilitate DHA penetration. Soluble dyes are added to the composition to get an immediate colouring effect but these are removed by washing or showering, by which time the DHA has produced a tanning effect.

Title: Artificial tanning emulsions comprising sorghum extracts and organomodified silicones

US Patent: 7,012,101

Serial Code & Application No. 10/338,713

Date Granted: March 16, 2004

Assignee: L'Oreal, Paris

Claimed is a topically applicable artificial tanning emulsion including an effective artificial tanning amount of at least one sorghum extract, and at least one organomodified silicone. It is also claimed that the composition includes 1% to 10% DHA and at least one UV protection agent.

The sorghum extract is obtained from the whole plant, the stems, the seeds or the leaves of Sorghum vulgare, which will add colour to fair skin when applied at the rate of 2 mg per cm^2. The sorghum extract comprises up to 10% by weight of the composition and the organomodified silicone or polyorganic silicone represents up to 40% and the product may be a water-in-silicone emulsion. It is claimed that it gives the skin an artificial coloration close to that of a natural tan, immediately after applying the product to it and it has good stability and is pleasant to apply..

The polyorganic silicone may be selected from an extensive list but cyclopentadimethylsiloxane and PEG/PPG-18/18 dimethicone appear to be preferred. The UV screening agent may be any that are approved by current legislation and that are stable in the final composition, which may also include emulsifiers, humectants, perfume, colorants, preservatives and other ingredients to improve its shelf life and aesthetic properties.

Decorative cosmetics are the theme for these 3 patent abstracts; two suggest improvements to non-transfer lipsticks and the third describes encapsulated fluorescent compounds.

Title: Composition containing a semi-crystalline polymer and a volatile oil

US Patent: 8,142,765

Application No. 10/502,447

Date Granted: March 27, 2012

Assignee: L'Oreal S.A

Non-transfer lipsticks are available in the market place but users often complain of the lack of comfort and gloss of these types of product. The inventors claim to have improved the application of such products using the combinations described in the patent.

Claimed is a makeup composition comprising at least one liquid fatty phase structured with at least one semi-crystalline polymer having an organic structure, a colorant and a volatile oil. The composition is in the form of a stick which on keratin materials, particularly the lips, lays down a glossy film that does not undergo transfer to objects with which the keratin materials come into contact.

The volatile oil is a cyclomethicone, dimethicone or a volatile hydrocarbon such as isododecane, isodecane, and isohexadecane or isohexyl neopentanoate, used singularly or in combination. Preference is given to a mixture of isododecane with cyclopentasiloxane. The volatile oils comprise from 30% to 40% of the total composition and represent 45% to 55% of the total liquid fatty phase.

The liquid fatty phase comprises a polar oil and isononyl isononanoate and the semi-crystalline polymers in the mixture are soluble in the liquid fatty phase at a temperature greater than their melting temperature. At least one semi-crystalline polymer is chosen from block copolymers of polyolefins of controlled crystallization, aliphatic or aromatic volatile polycondensates and aliphatic/aromatic volatiles, homopolymer or copolymers bearing at least one crystallisable side chain, and mixtures thereof. Preferred are two polymers; one with a melting point above 50°C and a second with a melting point between 30°C and 50°C.

In addition the lipstick will contain suitable dyes and pigments in an amount necessary to impart the desired shade and further polar and non-polar oils and waxes to giver the desired hardness and payoff plus flavouring and other ingredients to improve the aesthetics and shelf-life of the final composition.

Title: Long-wearing cosmetic composition

US Patent: 8,128,919

Application No. 11/814,260

Date Granted: March 6, 2012

Assignee: Avon Products, Inc

Besides leaving traces of makeup on surfaces that come into contact with the wearer another disadvantage of decorative cosmetics is the problem of .migration. It has been observed that some foundation compositions tend to spread inside wrinkles in the skin; that some lipstick compositions travel into the small wrinkles surrounding the lips, while eye-shadows tend to spread into the folds of the eyelids. In the case of eye-shadows, the appearance of lines in the make-up, caused by movements of the eyelids, were also noted. All of these phenomena produce an effect which the consumer quite obviously wishes to avoid.

Described is a method to render decorative cosmetics more durable and long lasting by incorporating a film forming polyurethane/silicone compound known chemically as bis-PEG-1 dimethicone-polypropylene glycol-26/isophorone diisocyanate copolymer. It is claimed that cosmetics containing it are more comfortable and less tacky to apply and a longer wearing film is formed on the surface to which the composition is applied.

The patent describes the formation of the copolymer at some length however the INCI name for this material is Bis-PEG-15 dimethicone/IPDI copolymer and it is available as Polyderm PP-Si-WS from Alzo International. The patent also describes all types of decorative cosmetics and includes an exhaustive list of possible ingredients for each of them. Of those described lip colorants appear to be the most preferred and the inclusion of from 5% to 20% of Bis-PEG-15 dimethicone/IPDI copolymer appears to significantly improve its application and wearing properties. It may be included as part of the total composition or supplied in a suitable emollient solvent such as polyisobutene to be applied after the colour as a film-forming protectant.

Title: Fluorescent cosmetic composition

US Patent: 8,133,508

Application No. 11/540,651

Date Granted: March 13, 2012

Assignee: L'Oreal

Fluorescent pigments or colorants can produce very brilliant, lively colours that cannot be produced with conventional colouring substances. When they do not absorb in the visible region, they can also lighten and significantly enhance the reflectance of substrates onto which they are deposited, such as the skin and hair. However they may only significantly fluoresce when dissolved in certain solvents or alternatively their toxicology may make them unsuitable for cosmetic use. In order to overcome these disadvantages it has been found that certain fluorescent organic materials can be encapsulated in metallic oxide structures and be both fluorescent and safe to use.

Described is a cosmetic composition containing fluorescent particles comprising molecules of at least one fluorescent organic compound trapped inside a matrix at least partially formed by at least one metal oxide.

The fluorescent organic compound or compounds are selected from fluoresceins, pyrazines, coumarins, naphthalimides, triazines, dioxazines, sulforhodamines, azo compounds, azomethinic compounds, stilbene derivatives, oxazole derivatives, benzoxazole, imidazole and mixtures thereof. The patent lists these materials in more detail and includes trade names and suppliers.

The metal oxide or oxides are selected from oxides of silicon, titanium, aluminium, zirconium and mixtures thereof but silicon oxide is preferred. The matrix is produced by sol-gel synthesis from a metal oxide in the presence of acid, ester, or phosphoric salt, followed by drying. In addition the compound may contain titanium dioxide or zinc oxide as colouring agents and it may contain at least one additional powdered substance selected from talc, mica, silica, polyamide and polymethylmethacrylate.

The encapsulated fluorescent materials may be applied as make-up, as decoration to the eye area or the lips or in nail and hair care preparations. In each case a suitable physiologically acceptable medium will be required such as an emulsion, a lotion or a paste. The composition may also contain ingredients commonly used in cosmetics to improve aesthetic properties and durability.

Title: Magnolia extract containing compositions

US Patent: 8,084,066

Serial Code & Appl. No. 12/706,557

Date Granted: December 27, 2011

Assignee: Mary Kay Inc

Claimed is a composition for increasing firmness or elasticity or reducing the appearance of dark circles and sagginess in the periorbital area of a person's skin. The composition comprises extracts of Magnolia bark and vitis vinifera with tocopherol or tocopherol acetate; and hydrogenated lecithin, lecithin, or dextrin.

According to the applicants, active ingredients identified in Magnolia flower, bark and seed cone extracts include magnolol, dihydroxydihydromagnolol, honokiol, and dihydrohonokiol. These are polyphenolic compounds and it is claimed that Magnolia extract can reduce the blood flow near the skin surface though vasoconstriction, inhibition of angiogenesis and endothelial cell migration.

Other active ingredients that are optional components of the composition include extracts of humulus lupulus, corylus avellana buds, cucumis sativa and citrus medica limonum and avena sativa kernel. Ascorbyl glucoside may be present to brighten or even skin tone by inhibiting tyrosinase activity. Additional optional materials include hydrolyzed soy protein, hesperidin methyl chalcone, dipeptide valyl-tryptophane and palmitoyl tetrapeptide-3. The claimed properties of these and other materials mentioned in the patent are each fully described.

The active principles may be combined in any cosmetically acceptable vehicle suitable for topical application in the eye area. Illustrative formulations are given with the results of extensive clinical trial that show a reduction in puffy eyes and dark circles and a general improvement in skin radiance. In-vitro studies on the effects of some ingredients on the inhibition of tyrosinase activity are also described.

Title: Topical compositions containing CIS-6-nonenol and its derivatives and methods for treating skin

US Patent: 8,128,914

Serial Code & Appl. No. 13/165,876

Date Granted: March 6, 2012

Assignee: Avon Products, Inc

Cis-6-nonenol is thought to have modulating activity against at least one biochemical pathway implicated in skin aging and claimed are cosmetic compositions comprising cis-6-nonenol and methods of using such compositions to impart anti-aging benefits to the skin. Such compositions are claimed to stimulate metallothionein production and to improve the overall appearance of skin, including treating signs of aging, such as skin wrinkles.

The metallothioneins are a family of cysteine-rich, low molecular weight proteins that participate in the uptake, transport, and regulation of zinc in biological systems. Cysteine residues from metallothioneins can capture harmful oxidant radicals and from this reaction, cysteine is oxidized to cystine, and the metal ions bound to cysteine are liberated to the media. Zinc released in this way can activate more metallothioneins and this process has been proposed as an important mechanism in the control of oxidative stress by metallothioneins.

The compositions containing cis-6-nonenol are believed to be effective in enhancing metallothionein activity, which is expected to increase the photo-protective properties of the skin as metallothioneins are down-regulated in UV exposed skin. The compositions comprise an effective amount of cis-6-nonenol, sufficient to stimulate production of metallothionein in the area of skin to which it is topically applied.

The patent names almost every type of cosmetic composition as a suitable vehicle for the compositions and names additional active ingredients having anti-aging benefits. These include botanicals, retinoids and retinol esters such as retinol palmitate, retinol acetate and retinol propionate. The composition may also include a skin penetration enhancer, an emollient, a skin plumper, an optical diffuser, a sunscreen, an exfoliating agent, and an antioxidant.

Note: Cis-6-nonenol is more commonly known as a perfume ingredient rather than a cosmetic material. Although the patent claims concentrations of 10% or more example formulae show a maximum usage of 0.50%.

Title: (Anti-aging) Skin care formulation

US Patent: 8,048,456

Serial Code & Appl. No. 12/871,557

Date Granted: November 1, 2011

Assignee: Mary Kay Inc.

Claimed are compositions for treating skin with a chemically compatible combination of skin active ingredients comprising palmitoyl tetrapeptide-7, methylsilanol mannuronate, and Lactobacillus ferment. Additional active ingredients include extracts of Punica granatum, Castanea sativa, Gossypium hirsutum, and Euterpe oleracea.

Unusually the patent discloses the cosmetic vehicle that includes the active ingredients; which comprises at least 50% by weight of water, 3 to 10% glycerin, 3 to 10% butylene glycol, 1 to 3% glyceryl stearate, 1 to 5% caprylic/capric triglyceride and 1 to 5% hydrogenated polydecene. The levels of these ingredients are adjusted according to skin type. Other combinations are also disclosed and all compositions may include ingredients to preserve and extend shelf-life.

It is claimed that the compositions described work surprisingly well in treating skin during the evening hours and the combination of ingredients is designed to work in synchrony with a person's skin rhythms to help the skin recover from environmental and other stresses during sleep.

Ingredient	Combo/Oily (%)	Normal/Dry (%) Skin
Actives		
Lactobacillus Ferment	0.900	0.900
Euterpe Oleracea Fruit Extract	0.010	0.010
Palmitoyl Tetrapeptide-7	0.001	0.001
Punica Granatum Sterols	1.000	1.000
Castanea Sativa Seed Extract	0.050	0.050
Gossypium Hirsutum Extract	0.020	0.020
Methylsilanol Mannuronate	0.010	0.010
Vehicle		
Water	72.100	60.800
Glycerin	4.300	8.300
Butylene Glycol	9.000	3.000
Glyceryl Stearate	1.200	1.300
Caprylic/Capric Triglyceride	4.000	3.000
Hydrogenated Polydecene	1.800	4.000

The composition formulated for combination and oily skin was tested on 66 female panellists and the composition formulated for normal or dry skin was tested on 63 female panellists, all from 32-65 years old and having self-perceived mild to moderate fine lines and wrinkles on face. The testing parameters included daily topical application of the composition to the face in the evening and removal in the morning over a period of 12 weeks. Panellists did not use any other skin treatment products during the testing period.

At the end of the 12 week period, a significant majority agreed that the compositions designed for their skin types hydrated, fortified and toned the skin; restored its luminosity and visibly reduced the appearance of fine lines and wrinkles. Skin felt firmer and less prone to sagging with increased elasticity and that it appeared younger with reduced signs of premature aging.

Many patents are filed without disclosing their purpose; examples are the first two shown here, the first of which describes an aloe gel composition with exfoliating properties and the second describes a moisturiser based on natural ingredients.

Title: Cosmetic composition and methods of use

US Patent: 8,178,113

Serial Code & Appl. No. 11/695,387

Date Granted: May 15, 2012

Assignee: Abdullah; Sheikh Ahmed

Claimed is a cosmetic composition that includes aloe vera gel, an exfoliant, vitamin C and vitamin A to enhance the general tone, glow, and firmness of the skin and to treat signs of aging, such as wrinkling and fine lines, leathering, yellowing, sagging and hyperpigmentation.

The exfoliant may be an enzyme or a mono- or poly-hydroxy acid such as an alpha.-hydroxy acid, beta.-hydroxy acid or tannic acid. A preferred mixture includes about 2 % to about 10% glycolic acid, about 2% to about 10% lactic acid, about 2% to about 5% salicylic acid, and about 3% to about 8% gluconolactone. To improve the effectiveness of the exfoliant the pH is buffered to between 2 and 3.7.

Aloe vera is an anti-inflammatory that soothes the skin, reduces itching, and relieves skin irritation and is generally recognised as a wound healing agent and to aid in delivery of active ingredients to skin. The particularly preferred level of aloe vera gel is about 48% to about 50% and by being the predominant ingredient the composition may be referred to as an Aloe gel composition, claims the patent.

Vitamin C is provided in encapsulated form to prevent oxidation by the alpha-hydroxy acids and this preferably represents between 10% and 20% of the composition, and an active level of 2 – 4% ascorbic acid. Vitamin A is an optional component but, when it is present, it is in the form of retinyl propionate and preferably at a concentration of about 1.0 %. Vitamin E is an optional component but when present is preferably there at about 0.1%.

Additional ingredients commonly used in cosmetic compositions include preservatives, colorants, fragrances, opacifiers, emulsifiers, and stabilisers that enhance the aesthetics and shelf-life of the final composition.

Title: Cosmetic composition and a process for preparing said composition

US Patent: 8,158,111

Serial Code & Appl. No. 11/917,271

Date Granted: April 17, 2012

Assignee: Natura Cosmeticos, Brazil

Claimed is a cosmetic composition that provides prolonged moisturising to the skin comprising olive esters, biosaccharide gum-1, a wetting agent of vegetable origin, an emollient of vegetable origin, a silicone and an oiliness adsorber.

The olive esters are cetearyl olivate and sorbitan olivate and they are present as a mixture totalling about 4% by weight of the final composition. It is claimed that these esters are responsible for the formation of a network of liquid crystals within the emulsion that provide a film on the skin, bringing about a prolonged moisturising effect. This effect is enhanced by the presence of the other components.

The biosaccharide gum-1 is present at about 8%. It has moisturising properties and is obtained by fermentation of sorbitol. The wetting agent is preferably glycerin at a level between 2% and 10%. Its function is to promote the retention of water on the skin and it further aids in increasing the efficacy of the emollient, it reduces scaling of the skin and it improves its sensorial properties.

The emollient is to add or replace natural oils to the skin, seeking to maintain the integrity of its hydro-lipid mantle. Examples given are alcohols and fatty acids, esters, ethers, mono-, di- or triglycerides, natural or synthetic hydrocarbons, or organic carbonates and combinations thereof. Preferred are caprylic/capric triglycerides, dicaprylic ether, dicapryl carbonate and cetyl lactate in a total amount ranging from 0.5% to 15.0% by weight.

From 0.1% to 5% of silicones such as cyclomethicones and cross-polymers of cyclomethicones and dimethicones and about 8% of an oil-absorbing agent such as Nylon-12 may be added. The final composition may also include other ingredients to improve and enhance the stability and aesthetic properties of the product.

Title: Pressed powder cosmetic composition comprising flaky glass

US Patent: 8,168,210

Serial Code & Appl. No. 12/549,006

Date Granted: May 1, 2012

Assignee: The Procter & Gamble Co

According to the inventors sericite and mica are components of powder foundations functioning as filler and pigment but when sericite or mica of natural origin is wetted by sebum or sweat, their translucency increases, while impurities such as iron oxide become more visible and this is believed to be one of the causes of colour and shade change of pressed powder products on the user.

The inventors believe there is a need for pressed powder cosmetic compositions that have balanced benefits in terms of shine control, transfer resistance, colour stability, good spreadability when applying on the skin, good adhesion with a fine texture and a fresh light feel on the skin with cake press formability, shock resistance and good pay off.

The patent attempts to provide these properties to pressed powder cosmetic compositions such as foundations, eyeshadows, blushers, highlighters and concealers by using a cosmetic grade flaky glass with a powder binder and a liquid binder.

The pressed powder cosmetic composition comprises from about 75% to about 98% of a cosmetic grade flaky glass described as at least 52% silicone dioxide and no more than 5% alkali metal oxide. It has an average thickness of 0.1-1.0 microns and an average particle diameter of 1-100 microns. The composition also includes from about 1% to about 24% sodium stearyl fumarate as a powder binder and up to 25% of a liquid binder such as polyalkyl or polyaryl siloxanes or hydrocarbons such as hexadecane or isohexadecane and polybutene or polyisobutene. Many other possibilities are cited.

The flaky glass of the present invention may be unmodified, surface coated, or complexed with other pigments. In one embodiment the flaky glass is hydrophobically surface treated with silicone. In another embodiment the flaky glass is a complex pigment coated with titanium dioxide and rare metal to provide pearlescence and brightness.In a further embodiment, the flaky glass encompasses dispersed coloured particles such as ultramarine to provide a coloured pigment that does not show dull colour over time.

The compositions may include other powders such as synthetic mica, talc, mineral clays and pigments for making the pressed powders and, when used at preferred levels, it is believed that compositions are provided with a particularly favourable transparent look and colour stability.

It is generally understood that as skin ages the free amino acids in the stratum corneum decrease and skin becomes drier. These amino acids originate from the proteolysis of filaggrin and it is possible to compensate for this deterioration by stimulating protease activity for degradation of this protein**.** The first two patents are different ways of achieving this aim. The third describes the inhibitory effect on the release of elastase in ageing skin by an extract of leaves of the *Castanea sativa* plant.

Title: Treatment and composition for achieving skin anti-aging benefits by corneum protease activation

US Patent: 8,182,799

Serial Code & Appl. No. 12/479,079

Date Granted: May 22, 2012

Assignee: Mary Kay, Inc.

Claimed are compositions for treating aged and environmentally damaged skin which provide improvements in the skin's visual appearance, function and clinical and biophysical properties by activating at least one proteolytic enzyme in the stratum corneum. Corneum protease activation refers to the stimulation, of one or more of the endogenous stratum corneum protease enzymes believed to be involved in the natural desquamation process of corneocyte shedding and subsequent stratum corneum turnover.

It appears that physical or chemical changes to the intact stratum corneum of the skin result in epidermal basal cell replication and subsequent increases in epidermal cell renewal. If the damage stimulus is well controlled, the process of epidermal replacement results in a healthier, better-functioning epidermis and a stratum corneum which looks and feels better, has greater capacity to hold moisture, and has fewer surface fine lines.

The compositions contain a combination of a cationic and anionic surfactants and a chelating agent to stimulate a chronic increase in the replacement rate of the skin's stratum corneum by means of corneum protease activation. It is claimed that this chronic, low level stimulation is effective to induce repair and replacement of the stratum corneum, epidermis, and dermis of the skin and improvements in the appearance, function, and anti-aging properties of the skin.

The preferred cationic surfactant is N,N,-dimethyldodecyl amine oxide at a level of 0.36%; the preferred anionic is sodium dodecyl sulfate or a monoalkyl phosphate at 0.12%and the preferred chelating agent is EDTA or one of its salts at 0.3%. Although these materials and levels are stated as much preferred the patent includes a much wider choice of surfactants and %. The compositions are in the form of water-in-oil emulsions suitable for topical application and contain least two UV absorbing agents selected from the group consisting of avobenzone, homosalate, and benzophenone-3; plus tocopheryl acetate and retinyl palmitate. The patent is supported by extensive clinical trial data.

Title: Administration of urea compounds for combating signs of cutaneous aging

US Patent: 8,173,144

Serial Code & Appl. No. 11/260,139

Date Granted: May 8, 2012

Assignee: L'Oreal, FR

It is claimed that urea derivatives stimulate the proteases of the skin and the patent includes numerous urea compounds but much preferred is hydroxyethyl urea present at up to 10% by weight in the final composition.

It is claimed that the urea derivatives are of particular use in stimulating the activity of the proteolytic enzymes of the stratum corneum and thus in combating the disorders associated with a reduction in the activity of these enzymes related to age. These particular enzymes are from among the group consisting of serine proteases, aspartic acid proteases, cysteine proteases, and metalloproteases. Of these enzymes urea compounds appear to particularly stimulate aspartic acid protease activity and are thus useful as agents for regulating epidermal differentiation and for promoting the degradation of filaggrin. They also inhibit the reduction in the amount of free amino acids in the stratum corneum related to age and reduce the age-related accumulation of abnormal proteins.

The patent claims that any composition of the invention can be ingested, injected or topically applied to the skin or to the mucous membranes but preferably they are topically applied. Depending on the method of administration under consideration, the composition can be provided in any dosage form normally used. Every known dosage form of cosmetic is then described in the patent but of interest is the inclusion of active ingredients to stimulate the synthesis of collagen and elastin and of glycosaminoglycans and fibronectin and many examples are given.

Title: Cosmetic compositions containing an extract of leaves of the Castanea sativa plant and cosmetic treatments

US Patent: 8,067,044

Serial Code & Appl. No. 10/597,964

Date Granted: November 29, 2011

Assignee: Cognis France

Claimed are cosmetic compositions that include an extract of the leaves of the *Castanea sativa* plant in association with typical cosmetic ingredients for the topical treatment of human skin. It is claimed that the treatment provides at least one anti-ageing effect selected from the group consisting of an anti-free-radical effect and an anti-protease effect, with the proviso that the anti-ageing effect is not an anti-matrix-metalloprotease-effect or an antilipoxygenase effect.

Castanea sativa belongs to the family *Fagaceae,* commonly known as sweet chestnut and Spanish chestnut and the principal constituents extracted from its leaves comprise 9% tannins including gallic and ellagic acids; flavonoids, especially quercetin derivatives, ursolic acid and about. 0.2% vitamin C. Like other tannin-containing drugs, chestnut leaves can be used as an astringent and to treat circulation problems.

The extract is most preferably added at up to 3% by weight to almost any cosmetic composition, regardless of product type or additional ingredients and the applicants claim many possible cosmetic effects including an anti-ageing effect, the treatment of heavy legs syndrome, photo-protection and skin lightening and anti-inflammatory, anti-itching, anti-free-radicals effect and an anti-protease effect.

Tests to demonstrate the anti-free radical activity of the extract are detailed and tests to show its inhibition of inhibition of UV-radiation on human fibroblasts and of melanin synthesis are also described. Elastase is a protease which is secreted either from stressed or aged human dermal fibroblasts, which catalyzes the destruction of the main dermal proteins, for example elastin and collagen fibres, and therefore induces the intrinsic aging as well as the photo-aging of human skin. The extract is shown to inhibit the production of .elastase and this confirms its anti-ageing properties, claim the applicants.

Title: Loose powders turning into liquids under cosmetic application

US Patent: 8,226,961

Appl. No. 10/527,948

Date Granted: July 24, 2012

Assignee: LCW, France

Claimed is a method for the preparation of cosmetic compositions having the texture of a cream when applied to the skin. The composition comprises a liquid phase (A); a powder containing a gelling agent (B) and optionally, (C), an active cosmetic ingredient.

The liquid phase is encapsulated or immobilised in a solid carrier and the powder phase includes starch modified by carboxymethyl groups. The solid carrier consist of mineral particles with a hydrophobic surface such as titanium dioxide treated with a silane group, a fluorinated group, or a combination thereof. A variation is described where the gelling agent is made up in whole or in part of particles of modified mica and the mineral particles comprise metallic oxide particles with lipophobic groups grafted on their surface.

When the composition is applied to the skin the gelling agent is released and the powder takes on the appearance and texture of a cream. The phases may also be packaged separately and brought into contact just prior to use.

The liquid phase is described as a phase of aqueous or oily nature or as a water-in-oil type emulsion in which case it would be considered an "oily nature" phase or an oil-in-water type in which case this phase would be considered as an "aqueous nature" phase. The powder phase is characterised by particles that have a weak affinity for the liquid phase. That is the particles have a hydrophobic surface nature if phase (A) is aqueous, and a hydrophilic surface nature if phase (A) is oily. The particles are preferably of less than 100 nanometres in diameter.

The active cosmetic ingredient (C) is described as any compound or mixture of compounds that can confer a cosmetic character to the composition, for example by conferring an optical effect to this composition such as a colorant, lightener or sun block, or a treatment effect with a cosmetic character like as perfume, antiperspirant, moisturiser or slimming agent. This may form part of either phase A or phase B depending on its nature.

Title: Cosmetic comprising multi-coloured lustrous pearlescent pigments

US Patent: 8,221,536

Appl. No. 11/931,658

Date Granted: July 17, 2012

Assignee: Sun Chemical Corp.

Claimed are cosmetic compositions containing a pearlescent pigment comprising a substrate and a first layer, wherein the first layer contains iron oxide wherein the iron of the iron oxide has from about 1% to about 30% Fe(II) and from about 70% to about 99% Fe(III). The cosmetic compositions claimed incorporate virtually all those in use as decorative make-up including nail polish, lipstick and eyeshadow. The pigments may impart a large range of colours and shades and these are comprehensively included in the patent claims.

The most common types of pearlescent pigments are micronized titanium dioxide, metal oxide coated mica, metal oxide coated alumina, metal oxide coated silica, basic lead carbonate, bismuth oxychloride, and natural fish silver. Metal oxide coated mica pigments are characterized by excellent optical, chemical, mechanical, toxicological, and environmental properties and the colours obtained are based on the type of coating used, the layer thickness, and the number of coated layers.

Metal oxide coated platelet pigments may be magnetic or exhibit magnetic susceptibility however magnetic pigments are significantly limited and typical colours available are metallic black, grey shades, or bichromic shades characterized by a black or reddish brown absorbance colour combined with a weak interference colour. The patent claims to provide metal oxide coated pigments that are more vibrant and lustrous using a processing method that allows for optimal control of colour and opacity This is achieved by providing a pearlescent pigment comprising mica or titanium dioxide coated with a layer of iron oxide comprising about 10% to about 20% Fe(II), and from about 80% to about 90% Fe(III).

Iron oxide coated substrates exhibit intensely coloured pearlescent pigments with high lustre and by varying the thickness and the amount of Fe(II) and Fe(III) in the layer the colour, luminosity, and transparency of the pigment is altered. The mean thickness of the iron oxide layer may be from about 10 nm to about 250 nm and the pigment is surface treated to protect it from environmental stress.

The patent includes details of preparing the pigments and many example formulations for their use.

Title: Colouring material and its uses, in particular in the field of cosmetics, especially for making up the skin and superficial body growths

US Patent: 8,216,556

Appl. No. 12/706,863

Date Granted: July 10, 2012

Assignee: LVMH Recherche, France

Claimed is a solid colouring material obtained by precipitation, in an aqueous medium, of the reaction product of an alkali metal silicate with a coloured complex obtained by reaction, in aqueous solution, of a hydrolysable tannin with a salt of ferrous iron. The patent also relates to a cosmetic composition intended for making up the skin or superficial body growths using this colouring material.

Cosmetic use is often made of colouring materials of natural or synthetic origin and of inorganic or organic chemical nature. Plant dyes such as anthocyanins, carotenoids, curcumin, and chlorophylls are transparent in a liquid medium and they are used to simply colour a composition, without any colouring effect on the skin. If it is desired to use them in makeup products it is necessary to render them opaque. For this, they are rendered insoluble by fixing them to a solid substrate, for example alumina, using a cation which acts as precipitating agent.

Tannins have long been used in the preparation of dyes. They are found in most plants and in all their parts, in particular the bark, roots or leaves and are polyphenolic acid derivatives which result from the esterification by the acids of the alcohol functional groups of sugars. They have a highly variable chemical structure but one which always comprises a polyphenolic part. Some tannins are hydrolysable and these are esters formed by reaction of a natural catechic acid, such as gallic acid, caffeic acid or ferulic acid, or of one of their oligomers or polymers.

Tannins used to form lakes by reaction with ferrous iron are black in colour but are not particularly stable. However the applicants claim that by reacting hydrolysable tannins with a salt of ferrous iron to form a coloured complex and precipitating it as a black powder onto an alkali metal salt a stable black pigment is obtained. The alkali metal salt is preferably sodium silicate, potassium silicate or lithium silicate and the preferred tannins are obtained by aqueous extraction of the bark and aerial parts of the plant, *Anogeissus leiocarpus*.

Hair straightening is a common requirement in hairdressing, which generally requires the application of thioglycollates or strong alkalies. Both methods can be irritating to the scalp and cause significant damage to the hair. The three patent abstracts that follow suggest alternative methods; the first is based on the use of adenine as the active ingredient; the second uses a sugar compound and the third method utilises urea in combination with a mixture of plant extracts.

Title: Method of treating hair

US Patent: 8,182,798

Appl. No. 12/598,039

Date Granted: 22-05-12

Assignee: Conopco, Inc.

Claimed is a method of hair styling or straightening comprising: an active ingredient selected from adenine, guanine or derivatives thereof. In the preamble the applicants state that a problem with straightened hair is that once the straightening process has taken place hair tends to increase in volume causing it to appear fluffy, this is especially troublesome in humid conditions. The patent claims that compositions containing adenine or guanine can be used to impart humidity resistance to straightened hair and thus retain its style.

The preferred active is adenine, most preferably comprising from 0.1 wt % to 5 wt % of the total composition. An organic acid is required to act as a solvent for the adenine and either tartaric or citric acid is preferred and this is present at from 1 – 10% in a ratio of 1:1 to 1:1:5 adenine to organic acid. Tests show that the ideal pH is approximately 6 so the organic acid requires partial neutralisation with triethanolamine.

The patent claims that the presence of styling aids is advantageous and materials such as vinyl polymers are preferred, in particular block copolymers, preferably comprising 0.75 to 6% by weight based on total weight of the composition. However virtually all known styling polymers are mentioned as being suitable and the preferred product form is a leave-in hair conditioner. In an example formulation the conditioner contains a 50% anionic emulsion of dimethiconol and TEA-dodecylbenzenesulfonate and the conditioning aid is cetrimonium chloride with cetearyl alcohol. After application of the preferred composition the hair is straightened by the use of heat and ceramic tongs.

Title: Method of treating hair with a sugar composition

US Patent: 8,192,728

Appl. No. 12/531,084

Date Granted: 05-06-12

Assignee: Conopco, Inc.

Claimed are hair styling compositions and a method of styling that is particularly advantageous in relation to hair straightening. This patent also claims to deal with the problem of fluffy hair after straightening but in this patent sugar is the active ingredient of choice.

The sugar compound preferably has three waters of crystallisation and preferably comprises one hexose ring and one pentose ring. Especially preferred is lactulose and although the sugar can be either reducing or non-reducing, reducing sugars are preferred. The level of disaccharides present in the total formulation is most preferably from 0.5% to 3 % by weight of the total composition.

The remainder of this patent is very similar to USP 8,182,798 in that the preferred product form is either as a styling aid or leave-in conditioner and after application of the preferred composition the hair is straightened by the use of heat and ceramic tongs.

Title: Composition and method for hair straightening

US Patent: 8,192,729

Appl. No. 12/655,209

Date Granted: 05-06-12

Assignee: Saute; Robert; Saute, Steve

Claimed is a composition and method of use that allows for permanent straightening of human hair that is not irritating to the skin, which does not have an obnoxious odour, which is significantly less damaging to hair, that allows for the immediate shampooing of hair thereafter and that provides for re-treatment of the hair without additional damage.

The composition is based on using urea and high temperatures to break and reform disulfide bonds and as a means to allow for the penetration of low molecular weight proteins into the hair shaft. The method is patented as a three step process, however prior to the start the hair needs to be shampooed and dried. The first step is to apply 3- 8% urea in an aqueous solution that also contains 4 – 6% PEG-12; 2-5% hydrolyzed corn protein; 2-5% hydrolyzed soy protein and a combination of extracts of Gingko biloba, Chamomilla recutita (Matricaria), Citrus aurantium dulcis (Orange) peel, Althea officinalis, Achillea millefolium (Yarrow), Foeniculum vulgare (Fennel) and Glycyrrhizin glabia (Liquorice).

The first solution is left on the hair for sufficient time for it to soak into the hair before applying a hot iron set at a temperature between 400 and 450 degrees Fahrenheit. This is used to straighten the hair and is followed by combing between five and ten times as dictated by the type of hair being treated.

The second solution is then sprayed on to the hair and again it is treated with a hot iron followed by combing. The second solution is a conditioner-type emulsion based on 3-7% stearalkonium chloride, 2-5% glyceryl stearate with PEG 100 stearate, 1.5-3.5% cetyl alcohol, 0.5-1.5% stearyl alcohol, 0.5-1.5% Theobroma cacao seed butter and 0.3-0.7% dimethiconol meadowfomate. It also contains glycerin, 0.5-2.5% urea, citric acid, panthenol, hydrolyzed corn, oat and soy proteins and the combination of extracts as before.

After the hot iron and combing a third solution is sprayed onto the hair. This is an emulsion of 2-4% cetrimonium bromide, 0.5-2.5% glyceryl stearate with PEG 100 stearate, 1.5-3.5% cetyl alcohol, 1.5-3.5% stearyl alcohol, 0.3-0.7% triticum vulgare (wheat) germ oil and 0.1-0.3% PABA with hydrolyzed corn, wool and collagen proteins and the same combination of extracts used in the first two solutions. Again the hair is treated with a hot iron followed by combing; the hair is allowed to cool for 30 minutes before the solution is rinsed, the solution again applied and the hair rinsed to complete the process.

Each of the solutions may also include preservatives, fragrance and other materials to improve the shelf life and aesthetic properties of the products.

Hair straightening is a common requirement in hairdressing, which generally requires the application of thioglycollates or strong alkalies. Both methods can be irritating to the scalp and cause significant damage to the hair. The three patent abstracts that follow suggest alternative methods; the first is based on the use of adenine as the active ingredient; the second uses a sugar compound and the third method utilises urea in combination with a mixture of plant extracts.

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Each of the solutions may also include preservatives, fragrance and other materials to improve the shelf life and aesthetic properties of the products.

Oral care compositions generally consist of toothpastes, including gels, and mouthwashes. The following patent abstracts describe such compositions.

Title: Cleaning oral care compositions

US Patent: 8,293,216

Appl. No. 12/624,585

Date Granted: Oct. 23, 2012

Assignee: The P&G Co.

An effective oral composition can maintain and preserve tooth appearance by removing dental stains and polishing the teeth. It may clean and remove external debris as well, which can aid the prevention of tooth decay and promote gingival health. Abrasives in oral compositions aid in the removal of the tightly adherent pellicle film that usually comprises a thin glycoprotein-mucoprotein coating, which adheres to the enamel within minutes after teeth are cleaned.

Claimed is an oral care composition comprising a fused silica abrasive that offers improved cleaning. Preferably the fused silica abrasive has a median particle size from about 5 microns to about 10 microns, and 90% of the particles have a particle size of about 15 microns or less. The fused silica represents 5% to 20% of the total composition and a second abrasive material is selected from the group consisting of precipitated silica, calcium carbonate, rice hull silica, silica gels, aluminium silicates and phosphates. Other inorganic particulates include surface treated and de-hydrated precipitated silica, and mixtures thereof and these are preferred.

The abrasive combination is incorporated in a suitable carrier and may contain any material that is generally considered safe for use in the oral cavity. Therapeutic actives include anti-calculus agents, fluoride ion sources, stannous ion sources, whitening agents, anti-microbial, anti-malodour agents, anti-sensitivity agents, anti-erosion agents, anti-caries agents, anti-plaque agents, anti-inflammatory agents, nutrients, antioxidants, anti-viral agents, analgesic and anaesthetic agents, H-2 antagonists, and mixtures thereof. The properties of these and other possible additional materials are discussed at length in the patent.

The final composition may be a gel and the patent gives details of the formation and structures of many possible gel combinations and describes a selection of humectants, sweeteners, flavours and surfactants as well as thickening agents and other possible combinations of abrasive materials that may be used in oral care compositions.

Title: Calcium phosphate complex for oral care applications, its preparation method, and compositions containing the same

US Patent: 8,263,048

Appl. No. 12/975,052

Date Granted: Sept. 11, 2012

Assignee: Taipei Medical University

In the oral environment, the phosphates and calcium ions in the liquid phase (saliva) and the solid phase (enamel) maintain a dynamic equilibrium between demineralization and re-mineralization. The equilibrium may be imbalanced by various factors, which leads to an increase of demineralization but teeth can be repaired and caries can be prevented or alleviated so as to avoid pain or tooth loss by inhibiting the oral bacterial growth or buffering the acidity caused by soft drinks or bacteria metabolism.

According to the dynamic equilibrium mechanism, re-mineralization can be improved by the increase of the concentration of phosphate ions and calcium ions in the oral environment. Among various calcium phosphate salts, amorphous calcium phosphate (ACP) is considered as an ideal source of calcium ions and phosphate ions because of its advantageous solubility. However, the solubility of ACP decreases after contacting water in a

physiological environment as it transforms into crystalline hydroxyapatite. Furthermore, ACP only remains in mouth or dental surface for a short period, so its effect is difficult to be fully realised.

Claimed is a calcium phosphate complex formed by chelating gamma.-polyglutamic acid (gamma.-PGA) with ACP. This complex can prevent crystallization of ACP and maintain its high solubility. The calcium phosphate complex has superior muco-adhesion properties, allowing it to remain in the mouth longer and offering effective buffering, by which dental caries can be alleviated and prevented.

The .gamma.-PGA can be the acid form, the salt form or a mixture thereof; the calcium containing solution can comprise a calcium solution selected from the group consisting of calcium chloride, calcium hydroxide, and calcium nitrate solution. The phosphate containing solution is selected from the group consisting of disodium hydrogen phosphate and dipotassium hydrogen phosphate solution. Various ways of preparing the calcium phosphate complex are described and it may form part of any oral care composition including mouth washes, chewing gum and other dentifrice products and these and their possible compositions are described in detail.

Title: Alcohol free non-foaming mouthwash

US Patent: 7,195,753

Appl. No. 10/737,662

Date Granted: March 27, 2007

Assignee: OraTec

Microorganisms including those responsible for plaque formation rapidly build up in the oral cavity. Specific areas, including periodontal and sub-gingival spaces and inter-papillary spaces of the tongue, present environments that harbour bacteria. These species are difficult to reach by tooth brushing, and are only moderately affected by standard mouthwashes. The persistence of these microorganisms in such environments greatly increases the risk of calculus and plaque build-up and caries formation, which in turn presents the danger of gingival inflammation and periodontal disease.

The use of alcohol-containing formulations tends to produce unpleasant side effects including pain and stinging of the oral mucosa, unpleasant aftertaste and discoloration of teeth. According to the applicants prior art attempts to address this issue have included the use of cetylpyridinium chloride in the presence of an oral surfactant or the use of stabilised chlorine, however these types of alcohol-free formulations are of limited efficacy and also sting open sores or cuts in the mouth.

Claimed is a non-foaming periodontal composition for treating gum diseases or used in bleaching teeth that is alcohol-free. The composition is a mixture of an isoalkyl amine oxide having a carbon chain length of 7 to 14 atoms and an antimicrobial betaine compound, preferably either cetyl betaine or lauryl betaine. The preferred amine oxide is N,N-dimethyl-1-(11-methyl-undecanamine oxide) and 0.121% of this is mixed with 0.0575% of the betaine in water to create the patented active, which is then added at about 3% to a mouthwash. The non-foaming characteristics of the composition provide longer antimicrobial activity and improved adherence to the gums and teeth as a result of its surface tension reduction characteristics and good wetting properties.

The compositions are particularly useful in tooth extractions to heal without bacterial contamination from the mouth and in the treatment of gum disease and can be combined with conventional tooth paste.