Three patents about antiperspirants and deodorants, the first describes a liquid antiperspirant that remains stable indefinitely; the second a stick that does not crystallise and the third a deodorant spray at pH 5.5 – 6.5 to be skin-friendly.

Title: Method of making an anhydrous liquid antiperspirant composition

US Patent: 8,663,610

Appl. No. 13/518,944

Date Granted: March 4, 2014

Assignee: Colgate-Palmolive Co.

The patent describes a method of producing an anhydrous antiperspirant composition comprising at least one antiperspirant active and an anhydrous carrier. The carrier comprises a eutectic mixture of at least one basic compound selected from a basic amide and a basic amine and at least one member chosen from a cation and zwitterion. It is preferred that the antiperspirant active forms a ternary eutectic mixture with the carrier.

In the preamble it is said that there have been several forms of antiperspirant products, such as sticks, soft solids, roll-ons, and aerosols. The different forms deliver antiperspirant actives, and optionally deodorant actives, to axillary areas. There are disadvantages when formulating these types of products including the necessity to stabilize the antiperspirant from hydrolyzing and polymerizing during storage. Also the materials used for delivery may leave a white residue on the skin or clothing, which is aesthetically unpleasing. The applicants state that it would be advantageous to develop a new form of delivery of antiperspirant and/or deodorant actives and that is the aim of this patent.

In one preferred embodiment, the basic compound is urea and the cation or zwitterion is trimethylglycine. Typically, the urea and trimethylglycine are in a molar ratio of about 4:1. The urea and trimethylglycine form a ternary eutectic mixture with the antiperspirant active and the one preferred is aluminium chlorhydrate Typically, the ternary eutectic mixture comprises 5 – 25% aluminium chlorhydrate, 35 - 75% urea and 15 - 50% trimethylglycine, all proportions are by weight.

The antipsepirant composition should contain a maximum of 2% water and its pH is preferably in the range of 3 – 5. Urea and trimethylglycine are capable of forming a low-melting liquid of <120°C., when mixed at a molar ratio of 4:1. The addition of aluminium chlorhydrate reduces the melting point to about 60 – 80°C. It is claimed that the antiperspirant composition can provide a combination of enhanced sweat protection from an effective antiperspirant salt with the addition of improved mildness by raising the pH with a skin-compatible anhydrous carrier. In the presence of aluminium chlorhydrate the mixtures were stable at below room temperature for an indefinite period of time.

Title: Solid antiperspirant and/or deodorant composition

US Patent: 8,673,327

Appl. No. 12/747,838

Date Granted: March 18, 2014

Assignee: L'Oreal (Paris, FR)

Claimed is a water-in-oil emulsion comprising at least one discontinuous aqueous phase, at least one fatty phase, at least one silicone emulsifier and at least one antiperspirant and/or deodorant active agent.

The fatty phase contains a wax, preferably polyethylene wax with a melting point between 70° and 110° and present at a level of 6 to 15% by weight relevant to the total weight of the composition. By melting the polyethylene wax, it is possible to render it miscible with oils and to form a microscopically homogeneous mixture, but when the temperature of the mixture is decreased, recrystallization of the wax in the oils is obtained.

The "oil" is intended to mean a fatty substance which is liquid at ambient temperature and the patent names almost every cosmetic ingredient that meets this definition. Hydrocarbon oils and hydrocarbon chains with esters, ethers, fluoro, carboxylic acid and alcohol groups are preferred. In addition fatty acids and silicone elastomers are included and the total fatty phase represents from 10 to 40% of the total composition. To improve emolliency volatile silicones, non-volatile silicones and other non-volatile emollients may be included.

The emulsifier system comprises cetyl PEG/PPG-10/1 dimethicone or a mixture of polyglyceryl-4-stearate, cetyl PEG/PPG-10, dimethicone and hexyl laurate with a second silicon-based emulsifier, which is a mixture of PEG-18/PPG-18 dimethicone, cyclopentasiloxane and PEG-18/PPG-18 dimethicone up to a total level of 8% by weight based on the total weight of the composition. In addition there is 1% to 3% of an ethoxylated fatty alcohol nonionic surfactant present with an HLB greater than or equal to 10. Beheneth-10 is preferred.

The final composition may also contain an organic powder such as polyamide particles, polyethylene powders and acrylate polymers as microspheres. Of the many materials cited microspheres of allyl methacrylate/ethylene glycol dimethacrylate copolymer are particularly preferred as it improves the stability of the solid composition over time.

The aqueous phase will preferably range from 50% to 80% by weight relative to the total weight of the composition. Water will represent an amount preferably from 30% to 50% and the aqueous phase may contain solvents other than water, for example polyols or ethanol. A thickening aid may be included and PEG-14000 is found to improve product glide on application.

The preferred antiperspirant active is aluminium hydrochloride in activated or non-activated form or aluminum zirconium pentahydrochloride although many others are named. Possible deodorant actives include triclosan, cetyl pyridinium chloride, zinc salts and glyceryl esters.

Title: Deodorant Spray

US Patent: 8,685,380

Appl. No. 13/279,906

Date Granted: April 1, 2014

Assignee: C.B. Fleet Company, Inc.

The patent describes triethyl citrate as a compound used as the active ingredient in many deodorants. It is effective as such because of its ability to inhibit the growth of bacteria associated with the components of sweat. Triethyl citrate is slightly water soluble and functions at an optimal pH of 5, therefore when applied directly to the skin this slight acidity is often irritating.

Zinc glycinate is a compound which is also frequently used as an active ingredient in many deodorant products as it inhibits the growth of the bacteria that cause odour in sweat. It functions at an optimal pH of range of 7-8 so is both safe and effective for use in deodorant products that are applied to, or come in close contact with, the skin.

The applicants claim that a mixture of 1% triethyl citrate and 1% zinc glycinate are sufficiently effective at a pH range of 5.5-6.5 for an effective deodorant spray. The pH is adjusted by the addition of phosphoric acid and the composition may be formulated as a clear solution that provides strong, lasting, deodorant protection and does not stain clothing.

The deodorant may also contain an emollient selected from the group consisting of propylene glycol, propylene glycol esters, dimethicone and mixtures thereof: a surfactant such as polysorbate-20 and a cleansing surfactant like cocamidopropylamine oxide. The composition may also contain a moisturising ingredient such as PEG-75 lanolin, a preservative and fragrance.

Title: Use of expanded amorphous mineral particles for increasing the tenacity of a fragrance

US Patent: 8,636,990

Appl. No. 12/620,236

Date Granted: January 28, 2014

Assignee: L'Oreal (Paris, FR)

The patent describes a delivery system for fragrance using expanded amorphous perlite, which is a type of volcanic rock. The amorphous particles are obtained by thermal expansion of the rock followed by milling to obtain particles with a maximum diameter of 50 microns and a loose bulk density of about 300 cubic metres per kilo. Perlites comprise approximately 70.0-75.0% by weight of silica (SiO_2) and 12.0-15.0% of aluminium oxide (Al_2O_3) with other minerals making up the total composition.

The expanded perlite particles preferably have a water absorption capacity, measured at the wet point, ranging from 250 to 800%. The wet point corresponds to the amount of water which it is necessary to add to 1g of particles in order to obtain a homogenous paste. The particles can absorb water and solvents such as alcohol, cyclic silicones like cyclopentasiloxane and volatile hydrocarbons such as isodecane or isohexadecane.

The applicants claim that the expanded amorphous mineral material constitute a good agent for treating perspiration and can be easily formulated in numerous products intended to reduce perspiration. The particles are used to absorb a fragrance and are then utilized in deodorant or antiperspirant compositions such as roll-ons, sticks and aerosols. In addition to the fragrance and perlite particles the compositions may also include an active deodorant compound such as triclosan, chlorhexidine, zinc salts, sodium bicarbonate or salicylic acid and its derivatives. Also mentioned are caprylic/capric glycerides, glycerol caprylate or caprate, polyglyceryl-2 caprate and biguanide derivatives.

If the final composition is an antiperspirant the preferred antiperspirant materials are aluminium and/or zirconium salts or complexes and particularly preferred is aluminium chlorhydrate. In order to improve the antiperspirant effectiveness of the composition use may additionally be made of one or more water-soluble anionic polymers, in particular those deriving from maleic acid and/or maleic anhydride.

The patent describes the normal cosmetic deodorant and antiperspirant compositions with lists of potential ingredients that may be used to create the fragrance and the delivery vehicle. It is liberally illustrated with typical formulations; the following is an example of an anhydrous deodorant cream, all % are by weight.

Triethyl Citrate 7.0%

Isopropyl Palmitate 6.0%

Expanded Milled Perlite 17.5%

Cyclopentasiloxane (and) Dimethiconol 9.0%

Fragrance 1.0%

Cyclopentadimethylsiloxane q.s. to 100%

Title: Multi component moisture triggered controlled release system that imparts long lasting cooling sensation on the target site and/or provides high impact fragrance or flavour burst

US Patent: 7,067,152

Appl. No. 10/211,727

Date Granted: June 27, 2006

Assignee: Salvona LLC

The patent relates to cosmetic formulations comprising a multi component controlled release system that imparts a long lasting cooling sensation and provides a high impact fragrance or flavour burst in response to moisture. The controlled delivery system is substantially a free-flowing powder formed of solid hydrophobic nano-spheres that are encapsulated in moisture sensitive micro-spheres.

The solid nano-spheres consist of a hydrophobic material, a cooling agent and one or more agents selected from the group consisting of fragrance, flavour and a cosmetic, dermatological or pharmaceutical agent. The nano-spheres are encapsulated in a moisture sensitive micro-sphere consisting of a matrix material that also contains fragrance or flavour materials and a cooling agent. Upon contact with the moisture in skin or lips the micro-sphere dissolves to spontaneously release the fragrance or flavour materials and cooling agent. The nano-spheres are also released and swell or soften upon contact with moisture from the skin or lips to slowly release their fragrance, flavour and cooling agent content continuously for an extended period of time.

The micro-sphere has a size of from about 20 to about 100 microns. Considerations in the selection of the matrix material include good barrier properties to the active agents and the fragrance ingredients, low toxicity and irritancy, good stability and high loading capacity for the active agents of interest. Of the many named polyvinyl alcohol with a polysaccharide is preferred.

The nano-spheres have an average size of about 0.05 to about 2 microns and are formed from a hydrophobic material and preferably have a melting point from about 20° C to about 50°C. It is the melting point of the sphere that is important for use of the carrier system.

Many cooling agents are named but the patent is extensively illustrated with formulations and the majority of examples use a mixture of N-ethyl-p-menthane-3-carboxamide with N,2,3-trimethyl-2-isopropylbutanamide commercially available from Millennium Specialty Chemicals.

Title: Method and agent for enhancing diffusivity and long-lasting property of fragrance

US Patent: 7,538,081

Appl. No. 09/949,718

Date Granted: May 26, 2009

Assignee: Takasago Int. Co. (Tokyo, JP)

In the background to the patent various fixatives are described for adjusting the fragrance and long-lasting properties of aroma materials. Known fixatives are named such as dipropylene glycol, triethyl citrate, benzyl benzoate and salicylate and diethyl phthalate. However, claim the applicants, mere use of these fixatives is not sufficient for the adjustment of volatility and long-lasting properties of aroma components and fragrance compositions. Also some of these fixatives have a safety problem. The patent claims a fragrance composition having excellent diffusivity and long-lasting properties of fragrance by using a novel fixative.

Particularly preferred for imparting long-lasting fragrance properties in cosmetic, toiletry and bath compositions is 3-(menthoxy) propane-1,2-diol. It is a colourless substantially odourless oil-based material compatible with most fragrance compositions. It is known that this compound can have a cooling effect and because of this may be applied to a composition for inhibiting inflammation of throat and nose. However, it improves the lasting effect of the fragrance even if used at such a low level that the cooling effect is not noticeable.

The amount of the compound to be incorporated in a fragrance composition or product and the method for applying the compound may be optimized depending on the kind and purpose of the fragrance or product in which the compound is incorporated. Particularly preferred examples of notes of the fragrance composition to which the agent is applied include those having at least one note selected from the group consisting of floral, citrus, fruity, green, mint, herb, and marine notes. The amount added varies from 1% by weight to 50% by weight based on the total weight of the fragrance composition.

Various example fragrance compositions illustrate the patent and comparative testing protocols for proving the enhancement of the fragrance diffusivity and long-lasting properties are described.

Title: Refreshing cream foundation in gel form

US Patent: 8,663,667

Appl. No. 13/379,691

Date Granted: March 4, 2014

Assignee: L'Oreal (Paris, FR)

In the background to the patent the applicants state that many cosmetic compositions are difficult to apply and do not possess a smooth feel upon application, It was their objective to provide a composition capable of possessing a good texture and feel with moisturizing and long wearing properties.

The patent describes compositions comprising a sugar silicone surfactant, a gelling agent, a polyamine and a hyperbranched polyol and at least one polar modified polymer plus water and a colorant.

The sugar silicone surfactant has the formula: Sach-X-Dn-X-Sach where Sach is most preferably glucose. X represents a linear, unsubstituted alkyl group having 1-6 carbon atoms and at least one N atom and D represents a silicone-based group of the formula R_2SiO, where R_2 represents a methyl group. Preferably, such sugar silicone surfactants are prepared by reacting a lactone form of the saccharide with an amino form of the D group, thereby forming an alkyl group X having an N atom between the saccharide moiety and the silicone moiety. Particularly preferred sugar silicone surfactants include gluconamidoethylaminopropylsilicone, lactobionolactonesiloxane, or a mixture thereof and most preferably represent from about 1% to about 10% of the total composition.

The preferred polar modified polymers are ethylene or propylene maleic anhydride copolymers however many variations on these help obfuscate the patent. They preferably represent from about 5%

to about 15% by weight of the total composition. The polyamine compound represents from about 0.5% to 5% by weight of the total composition and examples of the many described as suitable are polyvinylamine/formamide and chitosan. Particularly preferred thickening agents are polysaccharides such as cetyl hydroxyethyl cellulose, quaternized celluloses and hydroxyethylcelluloses, present from about 1.0% to about 4.0%.

According to preferred embodiments the polar modified polymer is reacted with the polyamine compound, in the presence of water to form a reaction product, which is water-insoluble. It is suggested that the reaction product is an elastomer-type compound having ester linkages which can swell in polar solvents or can disperse into the water phase.

There are many optional ingredients including pigments, volatile hydrocarbons and cyclic siloxanes and the applicants claim that the compositions may be used for any application in which it is desirable to employ a waterproof film, capable of carrying insoluble ingredients such as pigments, that is stable, easily spreadable, and comfortable to apply. The patent includes many illustrative formulations for different types of decorative makeup.

Title: Water-in-oil emulsion comprising pigments in the water phase

US Patent: 8,758,783

Appl. No. 13/721,835

Date Granted: June 24, 2014

Assignee: L'Oreal (Paris, FR)

Described is a cosmetic composition in the form of a water-in-oil emulsion comprising an oily phase and an aqueous phase, which contains water, a pigment, a modified phospholipid, and an alkyl substituted diol comprising 5 or more carbon atoms in the alkyl chain. The pigment is dispersed and stabilised in the water phase, making it possible to achieve a substantially consistent shade as it transitions from the wet to dry state and it provides enhanced colour intensity.

The preferred phospholipid is either lecithin or hydrogenated lecithin, present at about 0.2 – 0.3% by weight and the preferred alkyl substituted diol is caprylyl glycol, also present at about 0.2 – 0.3% by weight. Working together as a combination, the modified phospholipid and the alkyl substituted diol prevent the particles of the pigments from agglomerating with each other, and thus, the separated pigment particles remain suspended in the water phase of the water-in-oil emulsion.

The pigments are typically employed in amounts of about 2% to 8% by weight and have not undergone treatment to modify their surface properties. The composition of the oil phase is not defined and it represents about 5- 10% of the final composition. An emulsifier is also required, an example given is PEG-30 dihydroxystearate with octyldodecyl xyloside and ingredients are included to modify the aesthetics and shelf life of the product. It is claimed that the final composition is representative of BB Creams.

Title: Makeup composition comprising a black colour mixture of pigments

US Patent: 8,846,014

Appl. No. 14/165,773

Date Granted: September 30, 2014

Assignee: LVMH Recherche (Fr)

The patent describes cosmetic compositions comprising a black colour subtractive mixture consisting of one blue pigment, ferric ammonium ferrocyanide and/or ultramarine blue; at least one yellow organic pigment and at least one red organic pigment, which are homogeneously mixed to provide a very dark black colour.

The yellow organic pigment is selected from the group consisting of the lakes of FD&C Yellow No. 5, FD&C Yellow No. 6, FD&C Yellow No.10, and mixtures thereof. The red organic pigment is selected from the group consisting of the lakes of DC Red No. 6, DC Red No. 7, DC Red No. 21, DC Red No. 27, DC Red No. 28, DC Red No. 30, DC Red No. 33 and DC Red No. 34, and mixtures thereof.

An advantage of producing black pigments in this way is that different shades and intensities of black are possible and various combinations of the blue, red and yellow pigments are shown. One combination comprises 5 to 10% of a calcium lake of DC Red No. 7; 37 to 42% of an aluminium lake of FD&C Yellow No. 5, and 50 to 55% by weight of ferric ammonium ferrocyanide. Another combinations consists of 15 to 20% of a calcium lake of DC Red No. 7, 50 to 55% of an aluminium lake of FD&C Yellow No. 5, and 26 to 33% of ferric ammonium ferrocyanide, all % are by weight.

Typically, the cosmetic compositions incorporating the black pigment mixtures are in the form of mascara, blusher, nail varnish, lipstick, gloss, eyeliner, foundation, eye shadow, or skin decoration compositions. The patent is very extensive and it discusses the use of the mixtures in great detail, including the preparation of translucent lipsticks and nail varnishes, deep black mascaras and mixtures with "optical effect" material chosen from reflective particles, goniochromatic colouring agents such interference pigments, and any mixture thereof.

The three patent abstracts describe Spa treatments for skin disorders, hair removal and chemical peels.

Title: Compounds useful in therapeutic and cosmetic methods

US Patent: 8,492,578

Appl. No. 12/735,214

Date Granted: July 23, 2013

Assignee: Photoderma SA

The patent relates to photosensitizer compounds for use in cosmetic and therapeutic applications of photodynamic therapy. Photochemotherapy or photodynamic therapy is a technique that is primarily known for the treatment of various abnormalities or disorders affecting the skin such as cancers or pre-cancerous lesions and certain skin complaints such as psoriasis.

Photodynamic therapy is also used for purely cosmetic purposes such as the removal of unwanted hair or the treatment of greasy skin. Photochemotherapy involves the application of photosensitizing agents to the affected area of the body, followed by exposure to light at a suitable wavelength in order to activate the photosensitizing agents and convert them into a cytotoxic form, whereby the affected cells are killed or their proliferative potential diminished or their metabolic status altered.

The patent claims the use of 5-aminolevulinic acid-esters of natural compounds to be found in the body such as amino acids, steroids, carbohydrates and alcohols. These compounds are characterized by a low permeability to the stratum corneum and have a low allergenic potential so may be used for the cosmetic treatment of undesirable skin conditions. The patent is illustrated with fluorescence photographs that show area-specific effects of various esters of 5-aminolevulinic acid on certain areas of skin undergoing treatment. Of the many esters shown diethylene-glycol monoethyl ether ester of 5-aminolevulinic acid appears to be the most versatile when used for cosmetic treatments. It is generally

applied to the affected area in a cream containing 5% of the ester and then exposed to 3J/cm^2 of red light to activate the treatment.

Title: Preparations with wood extracts of locust trees

US Patent: 8,475,851

Appl. No. 13/365,089

Date Granted: July 2, 2013

Assignee: Symrise AG

Cellulite is associated with formation of dimples and depressions in the skin and nodulation of the subcutaneous fatty tissue. Cellulite can occur anywhere on the human body, but the outer surface and back of the thighs and the buttocks are the most commonly affected. Cellulite is generally associated with excessive fat deposition, but being overweight is not a precondition for its occurrence although there is a correlation between the severity of cellulite and the percentage of fat in the tissue.

Cellulite can also be accompanied by abnormal sensory perception, such as skin irritation and skin inflammation, of the affected regions of the body. The conventional methods of treatment try to promote blood supply to the affected areas of the skin and exert a beneficial influence on the connective tissue structure through massage, lymph drainage, diet, sport and liposuction. The applicants found that Gleditsia wood extracts are suitable as anti-cellulite active substances for producing a cosmetic or pharmaceutical preparation for the topical, prevention, treatment or reduction of cellulite. The extracts were found to inhibit the differentiation of pre-adipocytes, to inhibit lipogenesis in adipocytes, and to reduce the amount of lipids contained in subcutaneous fatty tissue.

Gleditsia triacanthos or locust trees are indigenous to the temperate and subtropical regions of North and South America and to parts of temperate and subtropical Asia and tropical Africa. The extract is obtained by solvent extraction, preferably a water/ethanol mixture, of the heartwood. After extraction some or all of the solvent may be removed and replaced with an aqueous/glycolic mixture or the dried extract may be encapsulated.

The extracts may be incorporated in suitable cosmetic vehicles for topical application to the affected areas and it is claimed that in addition to anti-cellulite properties, they also show SIRT-stimulating and anti-irritant efficacy. The compositions may also advantageously contain other lipolysis stimulants such as the xanthine, caffeine and theophylline. These preparations may also contain at least one UVA filter and at least one UVB filter and at least one inorganic pigment. Other additives include anti-inflammatory materials, materials that stimulate glycosaminoglycan synthesis, proteasome activators and cooling agents. The patent lists numerous examples of these additional additives and includes an extensive formulary of cosmetic compositions incorporating them in association with Gleditsia triacanthos extract.

Title: Systems and methods for skin rejuvenation

US Patent: 8,568,749

Appl. No. 12/798,416

Date Granted: October 29, 2013

Assignee: Sesvalia USA

Free radicals and oxidative stress are believed to be the factors that lead to premature aging of skin, loss of elasticity and hyper-pigmentation associated with chronic sun exposure. Chemical peels are

among the most frequently performed aesthetic procedures and are commonly used for the purpose of rejuvenating the skin. The patent describes a method for skin rejuvenation involving a three stage treatment that is claimed to lead to improvements in the patient's skin texture and radiance and to a decrease in pore size. It may be used to treat sun damaged skin including areas of hyperpigmentation and rough skin and it is claimed that a skin rejuvenation system as described may be used for penetration of the stratum corneum all the way down to the basal membrane.

First is topical application of a booster product that includes active ingredients of ferulic acid and phloretin in a mixture of ethanol and macrogol. This is followed by exfoliating with a combination of alpha hydroxyacids (AHAs) and finally a nano-additive product is applied to enhance penetration of the active ingredients.

The booster product contains about 12% ferulic acid and about 5% phloretin and is applied to activate the area to be treated. The exfoliating product comprises about 8% ferulic acid, about 5% phloretin, about 5% caffeic acid, about 5% rosmarinic acid, about 5% lactic acid, and between 15% to 20% trichloroacetic acid, also in an ethanol-macrogol solution.

The final treatment is a combination of active ingredients encapsulated in liposomes. The liposomal lipid is a phosphatidylcholine and the active ingredients in the nano-additive product comprises ferulic acid, phloretin, azelaic acid, nicotinic acid, retinol, ceramides, phytosphingosine, zinc and soy bean extract. It is claimed that by using a vehicle comprising a mixture of ethanol and macrogol the peel described enables the highest concentrations of ferulic acid and phloretin believed to be safe and effective for periodic application to the skin.

According to the applicants the use of macrogol, also known as polyethylene glycol, as part of the carrier increases the level of ferulic acid that may be dissolved in the carrier and applied to the patient. The combination of different active ingredients may also provide a mixed action mechanism where trichloroacetic acid may act through a caustic mechanism while ferulic acid, phloretin, azelaic acid, AHAs and retinol may follow a metabolic mechanism. In the case of trichloroacetic acid a toxic effect on keratinocytes and fibroblasts may also exist

Three patents for compositions for body care treatments are described. Two are related to treating cellulite and the third is a depilatory based on the juice of *Solanum incanum.*

Title: Utilization of peptides as active ingredients for slimming

US Patent: 8,044,027

Appl. No. 12/300,597

Date Granted: October 25, 2011

Assignee: ISP Investments Inc.

The study of the SIRT genes and corresponding proteins has provided new therapeutic targets allowing for an intervention in the regulation of the energy metabolism of mammals and recent studies have shown that SIRT1 causes mobilization of fat in the adipocytes. Described is a method of using proteins, peptides and polypeptides of the SIRT family as active ingredients for slimming, alone or in combination with at least one other active agent, in a cosmetic composition. The patent also includes the use of peptides for treatment of cellulite and to decrease, eliminate or prevent excess fat beneath the skin.

The principal peptide described is Gly Leu Tyr Asp Asn Leu Glu (SEQ ID NO: 5) with at least one functional group protected by acylation or an acetylation of the amino-terminal end, or anamidation or

an esterification of the carboxy-terminal end, or both. The peptide is dissolved at a concentration between around 0.005 and 500 ppm in a suitable vehicle for topical application to the skin.

In addition the compositions may contain a lipolytic agent selected from the group consisting of caffeine, acephyllin, nicotinate of xanthinol, diniprophyllin, diprophyllin, etamiphyllin, etophyllin, proxyphyllin, pentophyllin, propentophyllin, pyridophyllin, bamiphyllin, theophylline, and theobromin.

In-vitro testing to demonstrate the activity of the peptides on adipocytes is described and various formulations for slimming gels and anti-cellulite products are included. It was concluded that the compositions described have a very effective action on the adipocytes and significantly decrease the quantity of triglycerides contained in the adipocytes of the hypodermis.

Title: Method for testing a substance which is potentially active in the field of lipolysis and its mainly cosmetic use

US Patent: 8,741,359

Appl. No. 13/536,342

Date Granted: June 3, 2014

Assignee: BASF Beauty Care Solutions

The patent describes a method of testing a substance potentially active in the field of lipolysis. It comprises preparing a substrate containing at least one triacylglycerol; placing this substrate in contact with a substance potentially active in the field of lipolysis and with a lipoprotein lipase, in the presence of a cofactor of lipoprotein lipase. The mixture is left for a period of time sufficient to release at least in part one fatty acid of the triacylglycerol. The capacity to inhibit the release of the fatty acid resulting from the activity of the lipoprotein lipase, under the action of the potentially active substance is evaluated. Results are compared with the result obtained in the absence of the potentially active substance or compared with the result obtained in the presence of a known inhibitor acting as reference.

The applicants claim that lipolytic products can possess efficient slimming activities as the result of strategies which take all the mechanisms regulating lipolysis into account. A combination of veinotonic active products with lipolytic active products targets the whole of the mechanisms implicated in the regulation of lipolysis. Veinotonic active products have an action on the skin blood microcirculation and are used for the treatment of heavy legs and of oedemas and also for increasing capillary resistance in anti-inflammatory reactions.

The enzyme lipoprotein lipase is an enzyme produced by the adipocytes, which has the capacity to hydrolyse the ester bonds in triacylglycerols and the very low density lipoproteins circulating in the blood vessels, releasing fatty acids which are then captured by the adipocytes. The fatty acids transferred through the plasma membrane of the adipose cell will be taken up by the internal biochemical systems of the adipocyte in order to be stored again in the form of triacylglycerols.

The patent is based on the novel concept which is firstly to provide a method of testing a substance which is potentially active in the field of lipolysis and capable of acting upon the inhibition of the lipoprotein lipase, and secondly to make use of any materials capable of inhibiting the activity of lipoprotein lipase, as a novel means of action for limiting the storage in the adipocyte.

A screening of about a hundred molecules was performed in order to select active materials capable of inhibiting lipoprotein lipase activity. As a result it was found that extracts of Uncaria tomentosa and

of St. John's wort have lipolytic or slimming activity in a cosmetic composition when topically applied to human skin.

Title: Topical depilatory and method of removing hair

US Patent: 8,551,187

Appl. No. 13/453,861

Date Granted: October 8, 2013

Assignee: UMM Al-Qura University

Described is a topical depilatory made from the juice of a ripe fruit of the Solanum incanum for use as a hair removal agent. The juice is topically applied to a desired region of skin and preferably left on the skin for approximately one hour. The juice acts as a natural depilatory agent, and the hair on the area treated can be easily removed by combing or rubbing and the skin is then washed.

The plant *Solanum incanum* is a species of nightshade that is native to northwestern Africa and the Middle East and is commonly referred to by the names "Thorn Apple" and "Bitter Apple". All parts of the *Solanum incanum* contain steroid glycosides, in the form of glycoalkaloids that are widely regarded as defensive allelochemicals against pathogens and predators and are also commonly used as raw material for the industrial production of corticoids. The main steroid alkaloids found in the *Solanum incanum* are solanin (aglycon solanidin) and solasonine (aglycon solasodine) and they have antifungal and antibacterial properties.

The applicants found that the juice from the ripe fruit of *Solanum incanum* was effective in hair removal. The composition containing the juice was tested on a relatively hairy adult human male's leg, and compared against a conventional chemical depilatory and shaving. After one hour, all hair was removed in the area of treatment with the *Solanum incanum*-based depilatory composition. After twelve weeks, only a small percentage of hair had grown back in the treated area, which was far smoother with less hair growth than an adjacent area treated with the chemical depilatory. A further adjacent area, which had been shaved with a conventional razor, had full hair growth.

Title: Cosmetic particulate gel carriers for topically applied active agents

US Patent: 8,025,892

Appl. No. 10/017,259

Date Granted: September 27, 2011

Assignee: Kobo Products, Inc.

The patent describes a delivery system that utilizes gel particles or beads for topical delivery of biologically or cosmetically active agents to the skin. The gel particles are formed by discharging a hot gelling agent solution through an orifice into a cold moving stream of hydrophobic liquid. The gelling agent solution cools rapidly and gel particles coalesce in the cold hydrophobic liquid stream. Optionally, the gel particles can be crushable gel beads formed of an agar complex providing cosmetic and pharmaceutical delivery vehicles for active agents such as ascorbic acid, lactic acid or papain.

Controlled release systems release the active when initiated by a particular event. For example, with controlled release systems based on multilayer particles, the active ingredient is linked to the particle by means of ionic bonding and the release of the active is initiated by skin moisture, which has a relatively low ionic strength.

Gel forming polymers such as agar provide a delivery system by forming a matrix in which active substances can be entrapped. The applicants claim that by incorporating a polymer of opposite polarity to that of the active molecules the active can be bound ionically to the polymer. A suitable restraining polymer is water-soluble and has a polysaccharide backbone substituted with strongly cationic quaternary ammonium groups, which can act as retention groups for a range of active agents. The cationic ammonium groups are able to form stable ionic bonds with anionic actives and the bonds can be broken to release the active upon topical application of the cosmetic composition. Some suitable ionically bound active agents are antioxidants, e.g. ascorbic acid, botanically derived polyphenols, procyanidin oligomers, free radical scavengers and topically active enzymes.

The agar gel particles are prepared by dissolving agar in hot water and then mechanically dispersing the agar solution in a cold hydrophobic liquid immiscible with the agar solution maintained at a temperature below the agar gelling point. The polymer is included in the agar solution and is incorporated in the beads. The preferred range of average particle sizes is from about 0.25 mm. to about 1 mm. in diameter.

After application the ionic strength of skin moisture breaks the ionic bonds with the polymer encouraging migration of ionic active agents to moist areas of the skin. Alternatively, the normal acidity of the skin may release cationic actives or natural skin lipids like sebum may initiate the release of oil-soluble active ingredients.

The following patent is of interest because of its very complete description of the active constituents of plants that used in Chinese medicine.

Title: Herbal combinations for treatment of a skin condition

US Patent: 8,597,695

Appl. No. 13/218,432

Date Granted: December 3, 2013

Assignee: Sirbal Ltd.

Described is a method and medicine for treating melanoma, psoriasis or other inflammatory skin conditions comprising applying a cream that includes a molecular combination of emodin and digoxin and/or a herbal combination of Da Huang and Sheng Di Huang to an infected skin area. Other embodiments include combinations of Da Huang and/or Sheng Di Huang with Jin Yin Hua and one or more of Mu Dan Pi, Di Gu Pi, Xian He Cao, and/or Chun Gen Pi.

Contained within each of the seven herbs are several molecular constituents. An observed reduction of the white cell count owing to a treatment regimen of periodic doses of a combination of the seven herbs can be seen as a result of various combinations of active molecules, e.g. emodin and digoxin which are contained in Da Huang and Sheng Di Huang. Da Huang contains free anthraquinones including alizarin and aloe emodin, anthraquinone glycosides and bianthrones.

Studies by the applicants suggest that plant-derived cardiac glycosides regulate some cellular processes, such as proliferation and apoptosis, in a variety of cancer cells. The pharmacology of the seven herbs is described in the patent but their uses appear to be mainly by ingestion however the properties of many other plants and their active ingredients are also described. Examples are tannins, which are present in soil, plants, water, tea, wine, and fruit and have anti-inflammatory and free radical scavenging effects. Carvacrol, which is present in the essential oils of Origanum vulgare, thyme, pepperwort and wild bergamot that have antioxidant activity and also inhibit the growth of several bacteria strains, e.g. Escherichia coli and bacillus cereus, and pseudomonas aeruginosa.

The following patent is for the treatment of sunburn but unfortunately neither lidocaine nor hydrocortisone are permitted for cosmetic use within Europe.

Title: Composition for treatment of sunburned skin

US Patent: 8,636,988

Appl. No. 12/364,336

Date Granted: January 28, 2014

Assignee: Doctor Essentials

Even when taking care to avoid over exposure to sunlight, many people still experience sunburn and compositions are available for use in relieving pain and discomfort associated with sunburn.

Although existing compositions may temporarily relieve pain associated with sunburn, there is often little if any acceleration of the healing process, claim the applicants. There exists a need for compositions which can relieve pain associated with sunburn, which minimize discomfort, and which preferably may accelerate healing. Claimed is a composition for treatment of burned or irritated skin that includes an anesthetic component, an anti-inflammatory component, an emollient and a pharmaceutically acceptable base.

The preferred anesthetic component is lidocaine at between about 0.5% and about 1% by weight of the composition; the preferred anti-inflammatory component is hydrocortisone present between about 0.5% and about 1% and the emollients are preferably aloe vera and jojoba oil, each present at between about 3% and 10% by weight. In addition, coconut oil and/or almond oil may be included as soothing and moisturizing agents.

Other active components may also be included such as trolamine 99 as an analgesic, chlorobutanol as a preservative and local anesthetic, silver sulfadiazine as an anti-bacterial agent and zinc as an anti-oxidant to protect against premature skin aging. Zinc oxide may be included to prevent dehydration of the skin and caffeine may be included as a tanning aid.

The pharmaceutically acceptable base consists of components selected from the group consisting of ethanol, glycerin, benzyl alcohol, purified water, and mixtures thereof. The resulting composition has a cream like consistency, which when applied to the skin becomes nearly dry to the touch. It exhibits a smooth, silk-like feel once applied and when applied to an area of burned or irritated skin, the pain immediately subsides, and in the case of sunburn, there is a noticeable tendency for the composition to reduce or eliminate peeling of the skin as the sunburn heals.

There is little patent activity aimed specifically at personal care products for babies and those that have been filed are mostly describing compositions for use on wet wipes to clean the diaper (nappy) area and to treat diaper dermatitis. This may be caused by impaired barrier function causing increased skin hydration due to the occlusion of the skin caused by diapers, removal of skin lipids by surfactants associated with bathing and cleaning and enzymatic skin damage due to faecal and urinary enzymes.

The following patents describe three different approaches to providing compositions for wet wipes to be used on babies.

Title: Cleansing preparation and articles comprising a cleansing preparation

US Patent: 6,300,301

Appl. No. 09/566,785

Date Granted: October 9, 2001

Assignee: The Procter & Gamble Co

The patent describes an oil-in-water (o/w) cleansing emulsion suitable for impregnating into wipes for the cleansing of a baby's sensitive skin.

According to the applicants a conventional baby wipe consists of a small sheet of fibrous material impregnated with an aqueous cleansing preparation. Such wipes have been found to be very acceptable as a means of cleansing urine and bowel motions from a baby's skin. However, such wipes do not, normally provide any protection for the skin against the effects of subsequent wetting or soiling, and it is therefore common practice, after using the baby wipe, to apply an oil-based material, for example in the form of a cream.

It is the objective described in the patent to use an oil-in-water emulsion, in which there is a high proportion of water to provide the cleansing action, and in which the droplets of oil provide the desired skin protection. To overcome the stability problem without using polymers that increase viscosity the composition is homogenized using a high pressure homogenizer.

The first stage is to make an o/w emulsion in concentrated form which is homogenized at high pressure until the median particle diameter is preferably ≤0.2 microns. It is then diluted by adding it to water containing phenoxyethanol as part of the preservative system and then further preservatives may be added to the total composition and the pH adjusted to 5.5 using citric acid as required. The following formula illustrates the patent. The final composition is then used to impregnate a suitable substrate to create a baby wipe.

Oil Phase	%w/w
Mineral oil	2.00
Dicapryl ether	1.00
Caprylic/capric triglyceride	1.00
Ceteareth-12	1.00
Ceatereth-20	1.00
1st Stage Water	12.00
Aqueous Phase	
Water	80.10
Phnoxyethanol	0.90
Sodium benzoate	0.40
Tetrasodium EDTA	0.10
Final Phase	
Methylparaben	0.20
Propylparaben	0.10
Fragrance	0.10
Citric acid to adjust to pH 5.5	0.10

Title: Composition for the prevention or treatment of nappy rash

US Patent: 5,945,110

Appl. No. 08/889,118

Date Granted: August 31, 1999

Assignee: Cooperatie Cosun U.A. (NL)

According to the applicants the aim of the patent is to provide a composition which can be used to prevent or treat nappy rash and nappy dermatitis. This is achieved by using one or more sugar fatty acid esters as antimicrobial agents. This result is surprising in view of the fact that the sugar fatty acid esters concerned display virtually no action against other, skin-friendly, microorganisms belonging to human skin flora such as Micrococcus luteus and Staphylococcus epidermis.

The sugar fatty acid ester has 12-18 carbon atoms, the monoester content of the sugar fatty acid ester is at least 70% and the composition is about 200 to 50,000 ppm sugar fatty acid ester. Preferably the sucrose esters are present within the range of 0.1% to 5% related to the total composition.

The fatty acid component is selected from the group consisting of lauric acid, myristic acid, palmitic acid, stearic acid, oleic acid, hydroxy-and/or isostearic acid or a mixture thereof. The sugar component of the active substance is selected from the group consisting of sucrose, glucose, fructose, galactose, sorbitol, mannitol, lactitol, xylitol and a mixture thereof.

Two suitable sugar fatty acids are named as Sisterna SP70 [INCI: Sucrose stearate, sucrose palmitate] and Sisterna L70 [INCI: Sucrose laurate, sucrose palmitate]. Each of these have a monoester content of 70%. The final compositions can be in the form of soaps, creams, lotions, sticks or impregnated into tissues and disposable nappies.

In addition to the active antimicrobial sugar fatty acid esters, the compositions can also contain active or non-active materials such as buffers, cleansing agents, surface-active substances, emulsifiers and perfumes and other active substances, such as lipase and protease inhibitors.

Title: Wet wipes having skin health benefits

US Patent: 6,440,437

Appl. No. 09/491,898

Date Granted: August 27, 2002

Assignee: Kimberly-Clark Worldwide, Inc

The patent describes a soft wet wipe or wipe-type product, such as a baby wipe, that can be made by combining the wipe with an oil-in-water emulsion composition comprising a natural fat or oil, sterol or sterol derivative, humectant, emulsifying surfactant and water.

The preferred natural oils include borage oil, avocado oil or sunflower oil present from about 0.5% to 10% by weight. In addition the composition may contain petrolatum or mineral oil. The sterol or sterol derivative used in the composition may include soy sterol, avocado sterols, or cholesterol. The humectant may be glycerin, sorbitol or propylene glycol. The emulsifying surfactant may be glyceryl

stearate SE, emulsifying wax NF or propylene glycol oleate SE. The composition may further comprise from about 0.1% to about 30% by weight petrolatum or mineral oil.

One embodiment of the patent describes a composition comprising 1% borage oil, about 0.8% soy sterol, about 5% glycerin, about 3% glyceryl stearate SE, about 1% petrolatum USP, about 1% of a mixture of about 3 to 40% lecithin, between about 15 to 30% glyceryl monostearate, between about 15 - 40% blend of palmitic and stearic acid, and between about 0 to 30% maleated soybean oil, and about 89% water.

Another embodiment comprises about 10% palm kernel oil, about 1% lanasterol, about 15% hydrogenated starch hydrolysate, about 15% glyceryl stearate, about 5% petrolatum or mineral oil and about 54% water.

A third embodiment comprises about 30% evening primrose oil, about 5% cholesterol, about 5% sodium PCA, about 10% propylene glycol oleate SE and about 50% water.

In each embodiment the aqueous phase may also contain between 40% and 60% alcohol based on the total water/alcohol content of the composition and the preferred alcohols are ethanol and isopropanol. All quantities given are in % by weight and the pH of each composition is adjusted to 5.5. Further materials may be included from a very extensive list that contribute to the products aesthetics, efficacy and stability.

The three patents that follow show different approaches to providing improved make-up products.

Title: Water-releasing cosmetic makeup material

US Patent: 8,409,551

Appl. No. 13/078,025

Date Granted: April 2, 2013

Assignee: Shin-Etsu Chemical Co.

According to the applicants partially cross-linked polyether-modified silicones exhibit higher water retention and yield emulsions having larger particle sizes than conventional surfactants, and are known to yield cosmetic materials that exhibit a favourable feeling of wetness and a light touch. The term "water-releasing" describes the phenomenon where upon application of a cosmetic material, the shearing forces generated by the application cause the water-in-oil type emulsion to rupture, thereby causing the internal water phase to burst out in the form of water droplets.

Claimed is a water-releasing cosmetic makeup material that has excellent stability, exhibits good dispersion of colour pigments, and ruptures smoothly upon application to provide good spreading properties and superior feeling. The water-releasing cosmetic makeup material is formed of a water-in-oil emulsion comprising about 05% to 1.5% of a partially crosslinked polyether-modified silicone; a partially cross-linked polyglycerin-modified silicone or a combination thereof. Approximately 0.3% to 1.5% of an acrylic silicone-based graft copolymer and a branched silicone surfactant plus a similar quantity of ethylhexyl methoxycinnamate are also included.

Partially cross-linked polyether-modified silicones are materials in which organopolysiloxane chains have been crosslinked via polyether chains. Specific examples include dimethicone/PEG-10/15 crosspolymer, PEG-15/lauryl dimethicone crosspolymer and PEG-15/lauryl polydimethylsiloxyethyl dimethicone crosspolymer. Partially crosslinked polyglycerin-modified silicones are materials in which organopolysiloxane chains have been cross-linked via polyglycerin chains. Specific examples

include dimethicone/polyglycerin-3 crosspolymer, lauryl dimethicone/polyglycerin-3 crosspolymer and polyglyceryl-3/lauryl polydimethylsiloxyethyl dimethicone crosspolymer.

The acrylic silicone-based graft copolymer is one in which dimethylpolysiloxane chains are grafted onto an acrylic polymer chain such as alkyl acrylate/dimethicone copolymer. The branched silicone surfactant is a lipophilic surfactant having a structure in which hydrophilic polymer chains are grafted to a branched hydrophobic silicone chain. Adding ethylhexyl methoxycinnamate enables an ultraviolet protective effect to be imparted to the cosmetic material. Optional components include the types of components typically used within cosmetic materials such as oils, pigments and powders surfactants, thickeners and film-forming agents. Foundations prepared using the materials of the patent were not sticky, exhibited favourable spreading and pigment dispersion properties and released water favourably upon application.

Title: Transfer-resistant make-up or care composition based on isoparaffins and functionalized synthetic waxes

US Patent: 6,326,012

Appl. No. 09/371,007

Date Granted: December 4, 2001

Assignee: L'Oreal

Formulations for obtaining transfer-resistant cosmetic products often involves using silicone polymers or resins in combination with volatile starting materials which, after evaporation of the latter, leave an inert film which is resistant to transfer onto other surfaces, The volatile starting materials used are, for example, cyclic silicones of very low viscosity or isoparaffins. In order for these makeup products to be in solid form, it is necessary to add hardening compounds such as waxes but problems then arise with respect to mechanical stability and compatibility between the waxes and the volatile products. Specifically, for low wax contents, the stick is found to be not sufficiently hard, which may be the cause of stability problems or problems during use. Simply increasing the proportion of hardening waxes does not solve these problems since it is generally reflected by a degradation in the cosmetic properties of the product, which becomes uncomfortable to wear.

Described is a solid transfer-resistant makeup composition containing at least one volatile hydrocarbon based oil, and as a hardening agent, at least one functionalized synthetic wax having at least one hydroxyl or carboxyl functional group and having a melting point of between 75°C and 120°C. The volatile hydrocarbon-based oil is isododecane and the synthetic wax is C20-60 fatty alcohol. The composition further comprises one or more waxes of animal, plant or synthetic origin and one or more volatile solvents in addition to the volatile hydrocarbon-based oil and one or more non-volatile oils plus a silicone gum.

The volatile hydrocarbon-based oil most preferably represents from 10% to 60% and the synthetic waxes from 8% to 20% by weight of the total cosmetic composition. Additional volatile solvents may include volatile cyclic silicones, volatile linear silicones and volatile fluoro oils and optional non-volatile oils include silicone, hydrocarbon-based or fluoro oils, silicone gums and silicone waxes. The patent lists all the materials that could possibly fit these descriptions.

Also to be included are active agents which give their characteristic cosmetic properties and cosmetic adjuvants such as sunscreens, free-radical scavengers, hydrating agents, vitamins, proteins, ceramides,

pH regulators, antioxidants, preserving agents, fillers, pigments, dyes, emollients, antifoaming agents, fragrances, surfactants and plasticizers.

The patent describes various tests used to select the optimum composition and a representative formula of a satisfactory cosmetic stick is given as synthetic wax 16%; isododecane 38.8%; ozokerite 6.4%; volatile silicone 38.8%. This base was then used to prepare lipsticks and only those incorporating C30-C50 linear fatty alcohols with a melting point of 99°C as the synthetic wax gave satisfactory hardness.

Title: Water-based liquid makeup cosmetic

US Patent: 8,663,666

Appl. No. 12/296,731

Date Granted: March 4, 2014

Assignee: Mitsubishi Pencil Co

The stated objective of the patent is to provide a water-based liquid makeup cosmetic containing a tabular pigment that can be used to draw fine lines as an eyeliner with water-resistant fixing performance. The tabular coarse particles contained therein as an active ingredient are less liable to settle and the cosmetic can be evenly dispersed by slight shaking even when it has not been used for a while.

The water-based liquid eye-makeup cosmetic comprises at least a tabular pigment, a pigment dispersant, a film-forming agent, a surfactant, a neutralising agent, a chelating agent, a moisturising agent, a thickener, an antiseptic agent, water and a spherical powder. The tabular pigment is at least one pigment selected from the group consisting of mica, titanium dioxide coated mica, a metal or metal oxide-coated glass flake, an aluminium-coated polyester film and an aluminium powder pigment. The spherical powder comprises at least one of spherical silica particles, spherical mica particles, spherical nylon particles, spherical acrylic resin particles and spherical polystyrene particles. The pigment dispersant is a polymethyl methacrylate copolymer that is dissolved in water by neutralising with 2-amino-2-methyl-1-propanol and the surfactant is identified as polyethylene glycol fatty acid ester. The film former is alkyl acrylate copolymer and the chelating agent is disodium EDTA. The preferred moisturising agent is 1,3-butylene glycol and the preferred thickener is xanthan gum. The antiseptic [preservative] agents are methylparaben with sodium dehydroacetate.

Title: Composition comprising an extract of hardy kiwi for preventing or treating baldness disorders or seborrheic skin disorders

US Patent: 8,394,426

Appl. No. 12/868,130

Date Granted: March 12, 2013

Assignee: Viromed Co. Ltd

The present patent relates to a use of an extract of the hardy kiwifruit [Actinidia argute] for the preparation of a therapeutic agent for treating and preventing baldness disorder and seborrheic skin disease in humans and mammals. The hardy kiwifruit promoted the formation of hair root in mouse model experiments and inhibited the falling out of hair and improved seborrheic skin disease of volunteers.

To investigate the effect of hardy kiwi extract on alopecia and seborrheic skin disease, the inventors carried out *in vivo* and *in vitro* experiments concerning the inhibition effect on the reproduction of DHT (dihydrotestosterone) together with clinical experiments concerning hair growth stimulation and seborrheic skin disease. As a result of the investigation, the inventors confirmed that the extract of hardy kiwi reduced blood DHT level and inhibited the falling out of hair and suppressed the severity of seborrheic skin disease.

The extract of Actinidia argute fruit is prepared by collecting the ethyl acetate soluble fraction of a water extract of the fruit and separating it using a silica gel column. It may then be incorporated into a form suitable for oral administration such as a health food or capsule or applied as a topical preparation as a cream or lotion. Cosmetic compositions preferably contain 0.01 to 5% by weight of extract and optionally include additional additives such as vitamins, peptide polymers, polysaccharide polymers, sphingolipids and seaweed extracts. An extensive list of possible cosmetic product forms and their conventional ingredients are included in the patent.

To confirm the inhibition effect of the Actinidia argute fruit extract on the concentration of blood DHT, the extract was administrated into mice and the concentration of blood DHT determined. A reduction in blood DHT level of up to 90% was noted. To confirm the effect of an aqueous extract of Actinidia argute fruit on the formation of hair root a mouse model was used, which confirmed that the extract of hardy kiwi fruit can stimulate hair growth by promoting the formation of hair root in mouse.

Title: Pomegranate based skin protectant and topical application

US Patent: 8,263,140

Appl. No. 12/425,104

Date Granted: September 11, 2012

Assignee: Pom Wonderful, LLC

Ultraviolet (UV) radiation induces a number of harmful responses including erythema, edema, hyperpigmentation, hyperphasic responses, immunosuppression and photoaging and skin cancer.

Both UVB and to a lesser extent UVA are causative factors for sun-light induced skin disorders diagnosed in humans. Exposure of skin to UV light initiates a photo-oxidative reaction which impairs the antioxidant status and increases cellular level of reactive oxygen species (ROS) accompanied by activation of many ROS-sensitive signaling pathways. This impairs the ability of skin to protect itself resulting in increased oxidative stress, with consequent damage to the cutaneous tissues, a process commonly known as photoaging.

Sunscreens and other anti-aging actives are not effective in revitalizing skin that has already been damaged by sun, aging or other factors. There is a need to formulate skin care compositions with a viable shelf life containing actives that are effective in retarding the aging effects of sunlight and retarding the natural effects of aging on the skin, such as drying and loss of elasticity. A cosmetic composition incorporating ingredients is described that may prevent signs or conditions of aging and damage in skin and promote recovery from environmental stresses. The composition includes pomegranate juice concentrate; pomegranate extract; pomegranate seed oil; and at least one pharmaceutically or cosmetically acceptable vehicle.

The pomegranate oil may be encapsulated to protect it against rancidity or it may be provided from an airless pump or it may be incorporated as a dispersion of lipid vesicles encapsulating an aqueous phase. The aqueous phase may contain water-soluble bioactive substances and the bimolecular layers of amphiphilic lipids may contain lipophilic bioactive substances. An alternative is an oil-in-water

emulsion formed from vesicles encapsulating an oily phase. The pomegranate seed oil is obtained from its seeds by solvent extraction using isohexane and it is further refined, bleached, deodorized and stabilized against rancidity.

It is claimed that topical applications of different pomegranate-derived bioactive compositions in combination with cosmetically or pharmaceutically acceptable carriers synergistically regulates visible and tactile discontinuities in mammalian skin, including fine lines, wrinkles, enlarged pores, roughness, dryness, and other skin texture abnormalities and provides skin care compositions that improve the appearance of skin and remediate the effects of aging.

The extremely long and detailed patent describes methods of obtaining the various pomegranate [Punica granatum] extracts and its seed oil; at ways of incorporating these in skin care products and the effects of these preparations on reducing the signs of ageing in males and females.

Title: Cosmetic composition for the treatment of acne comprising a peptide extract of Schisandra

US Patent: 8,758,833

Appl. No. 13/387,518

Date Granted: June 24, 2014

Assignee: Laboratoires Expanscience

Described is a cosmetic, nutraceutical or dermatological composition intended to treat acne, comprising a Schisandra sphenanthera fruit peptide and sugar extract and a suitable excipient, wherein the peptide and sugar extract is an in a percentage ranging between 0.01% and 15% by weight in relation to the total weight of the composition.

The Schisandra fruit extract is obtained by supercritical CO_2 treatment of a crude oil and recovery of a defatted oil cake, which undergoes aqueous dispersion before being subjected to enzymatic treatment with a mixture of cellulases, proteases and alpha-amylases. The peptide extract is recovered using centrifugation, ultrafiltration and finally nanofiltration.

The composition further comprises at least one anti-acne agent selected from the group consisting of a sebum-regulating agent, an antibacterial or antifungal agent, a keratolytic or keratoregulating agent, an astringent, an anti-inflammatory or anti-irritant, an antioxidant or free-radical scavenger, a cicatrizing agent, an anti-aging agent and a moisturizing agent.

The cosmetic treatment of acne comprises oral administration of a nutraceutical composition or administering to the skin an effective amount of a cosmetic or dermatological composition containing the extract. The patent describes various combinations of the peptide with sugar and other ingredients that can advantageously be used to reduce, irritation or inflammation or to stimulate melanogenesis, improve skin barrier properties and moisture content and for anti-ageing claims. According to the applicants particularly advantageous combinations are compositions comprising the Schisandra sphenanthera fruit peptide, sugar extract and avocado oil or Schisandra sphenanthera fruit peptide, sugars and avocado oil unsaponifiables.

Three patents about hair form this month's patent abstracts. There is a product claimed to prevent hair loss, a conditioning system that can be added to shampoos or conditioners and an alternative method of imparting a permanent wave to hair – not to used if smoking!

Title: Composition for preventing hair loss, with excellent hair styling function, and hair tonic containing same

US Patent: 8,637,095

Appl. No. 13/512,811

Date Granted: January 28, 2014

Inventors: Noh; Hyun Soon (Seoul, KR)

Human hair grows and degenerates as it repeats three phases consisting of an anagen phase during which hairs grow, a catagen phase during which metabolism becomes slow, and a telogen phase during which papilla and follicles gradually shrink. As the follicles become smaller they are forced to move upward and hairs are lost. The period and lifespan of the hair might change depending on a nutritional state, a disease history, heredity, constitution, hormone secretion or aging. In terms of a patient who suffers from alopecia, a hair in anagen moves to catagen and telogen, so a lot of hairs pull out as the anagen stage becomes abnormally slower.

Described is an alopecia prevention composition preferably comprising about 0.4 - 0.6% salicylic acid, 1.0 - 3.0% tocopherol acetate, 0.2 - 0.5% nicotinic acid amide, 0.4 - 0.7% polyvinylpyrrolidone, 8.0 - 12% ethanol, 0.3 - 0.5% polyoxyethylene hydrogenated castor oil, 0.3 – 3.0% Sophora angustifolia root extract, 0.3 - 3.0% peony root extract and a residual quantity of purified water. The Sophora angustifolia root and peony root extracts are prepared by extraction using a solvent selected from the group consisting of ethanol, 1,3 butylene glycol, purified water, and mixtures thereof.

The patent also claims many other embodiments and in particular names ginseng extract, black bean extract, green tea extract and Korean angelica extract as possible additional or alternative natural active ingredients to provide enhanced conditioning properties. The composition is in the form of a hair tonic or styling lotion and further comprises at least one component selected from the group consisting of pH adjusting agent, moisturiser, perfume, coloring agent, antibiotic, solubiliser and ultraviolet absorber.

Various compositions were made and tested for prevention of hair loss, skin irritation, film-forming on hair shaft and styling effect and the composition referred to above gained the most points. It was also found that if the quantities of salicylic acid, tocopherol acetate and nicotinic acid amide exceeded the above-mentioned range, the styling function was compromised.

Title: Conditioning composition for hair

US Patent: 8,545,827

Appl. No. 13/062,007

Date Granted: October 1, 2013

Assignee: KAO Germany GmbH

The patent claims an aqueous conditioning composition for hair comprising at least one alkyl glyceryl ether and at least one silicone arylate. It can be in the form of a shampoo, a conditioning shampoo or as a post-shampoo conditioner. It was found that a composition comprising at least one alkyl glyceryl ether and at least one silicone arylate gives hair shine, volume and body, elasticity and smoothness and that it is easily manageable.

The alkyl glyceryl ether is selected from an extensive group of such materials but most preferred is glyceryl decyl ether used at a level of 0.5 to 2.5% by weight. The preferred silicone arylates selected from a long list of possible materials is trimethyl pentaphenyl trisiloxane or diphenylsiloxy phenyl trimethicone at a preferred maximum level of 2%.

The final compositions contain additional conditioning materials according to the type of product described. Thus one or more additional conditioning agents such as Polyquaternium 10, Guar hydroxypropyltrimonium chloride or Caesalpinia spinosa hydroxypropyltrimonium chloride may be added. Other preferred cationic polymers are polyquaternia 6, 7, 11, 67, 70 and 80. Further conditioning substances such as hydrolyzed proteins and polypeptides and at least one polyphenol from a natural plant extract may be included. In principal any natural plant extract rich in polyphenols is suitable but preferred are extracts from Vitis vinifera, Malus domestica, Camellia sinensis, Juglans regia, Ribes Uva-Crispa, nigrum or rubrum and Punica granatum present at about 0.05 to 2.5% by weight. A solvent such as benzyl alcohol or propylene glycol is included at about 5% and Coenzyme Q10 at about 0.5% and an oil-soluble and a water-soluble UV absorber also form part of the final composition.

Descriptions of the different types of delivery vehicle are described with illustrative formulations. That for a foaming conditioner is as follows: Qaternium-80 0.2%; Polyquaternium-11 0.7%; PEG-60-hydrogenated castor oil 0.5%; Diphenylsiloxy phenyl trimethicone 0.5%; Ethylhexyl glycerin 1.2%; Malus domestica (dry matter) 0.1%; Coenzyme Q10 0.075%; Benzophenone-3 0.3%; Fragrance, preservative q.s. Lactic acid q.s. to pH 4; Water q.s. to 100% by weight.

Title: Electrolytic system and method for reshaping hair

US Patent: 8,596,285

Appl. No. 13/428,966

Date Granted: December 3, 2013

Inventors: Ramaprasad; Ram, NJ

Chemical processes reshape hair by altering its chemical structure. Hair is made primarily of keratin proteins and the structure of keratin includes disulfide bridges. When hair is chemically treated, reducing chemicals such as thioglycolic acid solution, are used to break the disulfide bridges and the hair is shaped as desired. The broken proteins are then reset using a neutralizing agent, such as hydrogen peroxide, that reforms the broken disulfide bridges. Since the chemical structure of the hair has been altered, the effect is called a "permanent" because the hair remains altered and is generally unaffected by subsequent washings.

Described is a system and method of changing the shape of hair by breaking disulfide bridges in the keratin proteins of hair with atomic hydrogen. The head is wetted with buffered electrolyte that is preferably a water-based gel with a pH of about 8. Hair is set into a predetermined shape using cathode pegs as curlers and interwoven into it are a number of anode pegs. They are connected in parallel, anode to anode and cathode to cathode but anodes and cathodes are insulated from each other. Electrolysis is induced by passing an electrical current of at least 1.2 volts between cathodes and anodes and this causes molecules of water to separate into oxygen and hydrogen gas.

During electrolysis, atomic hydrogen is initially produced around the cathode and although pairs of hydrogen atoms quickly bond to form molecular hydrogen a large volume of atomic hydrogen is available near the cathode to react with the keratin proteins of the hair. The atomic hydrogen bonds to

the sulfur atoms on either side of the disulfide bridges, thereby breaking the disulfide bonds. After the disulfide bonds are broken, electrolysis is stopped and the hair is neutralized with hydrogen peroxide, which enables the disulfide bonds to reform, therein reshaping the hair into a permanent wave. Alternatively the current can be reversed and this allows the disulfide bonds to reform without the use of hydrogen peroxide solution.

Three skin-care related patents, one using pine extracts, one describing a delivery system based on nanoemulsions and the third describes using sphingomyelin to improve skin moisture by oral ingestion.

Title: Cosmetic composition for skin moisturisation comprising pine-resin extract, Pinus densiflora needle extract and Pinus densiflora root extract

US Patent: 8,906,433

Appl. No. 13/892,481

Date Granted: December 9, 2014

Assignee: Amorepacific Corporation (Seoul, KR)

The patent describes a skin moisturising cosmetic composition that includes extracts of pine resin, Pinus Densiflora needles and Pinus Densiflora root as active ingredients. It claims to improve moisturising activity on the skin and to enhance skin texture, clearness and contour.

The applicants write that in Oriental medicine and folk remedies pine resin possesses medical effects on inflammation, gastrointestinal disease, pulmonary tuberculosis, or the like, and a paste of its powder with water is recently reported to be useful as a good facial mask for acne treatment. The needles of Pinus Densiflora indigenous to Korea reportedly have a variety of medical effects including antimicrobial and antioxidant properties and inhibiting activation of melanin.

While researching pine resin, the applicants found that pine resin, pine needles and pine root from Pinus Densiflora can enhance skin moisturising activity and improve skin texture, skin clearness and skin contour. Raw pine resin is condensed and distilled twice before the product undergoes hydrogenation followed by a third purification and distillation process. The Pinus Densiflora needle extract is obtained by ethanol extraction at room temperature and concentrated by removing the ethanol through evaporation. The Pinus Densiflora root is extracted with water/ethanol (20:80) to obtain a germinating plant seed extract.

The usage level claimed for all three extracts range from 0.001% to 10% however samples prepared and used to illustrate improvements in skin moisture, colour uniformity, texture and peripheral blood flow contained 1% of each of the three extracts.

Title: Oil-in-water nanoemulsion, a cosmetic composition and a cosmetic product comprising it and a process for preparing said nanoemulsion

US Patent: 8,956,597

Appl. No. 11/577,931

Date Granted: February 17, 2015

Assignee: Natura Cosmeticos S.A.

Delivery systems play an important role in the development of effective skin-care products and consumers expect rapid and visible results. In order to achieve these results there are delivery systems of lipids, nanoparticles, microcapsules, polymers and films. The key aspects of the "delivery systems"

are improved penetration and efficacy; controlled delivery; separating incompatible actives, prolonging shelf life and inhibiting degradation of the active.

The patent describes an oil-in-water emulsion for cosmetic use wherein the oil particles have an average diameter ranging from 50 to 200 nm (nanometers). The emulsifying system comprises 10-20% ceteareth-20; 5-10% ceteareth-12; 40-70% glyceryl stearate, 5-10% cetearyl alcohol and 5-10% cetyl palmitate, based on the total weight of the emulsifying system. This composition imparts better absorption by the skin, imparting softness, smoothness and 24 hour moisturising.

Based on the total weight of the nanoemulsion the composition may also contain 1-5% phenyl trimethicone, 3-10% vegetable glycerin or glycereth-26; 1-5% biosaccharide gum and 0.1-10% of an emollient like passion fruit oil. Other materials to enhance the aesthetics, microbial resistance and shelf life may be included and the balance is water.

The method of processing is an important part of the patent and this is summarised as follows:-

a- heating the oil phase (phase A) to 75°C in an auxiliary vessel.

b- heating the aqueous phase (phase B) to 75°C in the main vessel

c- adding phase A to phase B and stirring at 1,500 rpm for 30 minutes, while keeping the temperature between 70°C and 75°C.

d- adding the cooling water (phase C) and stirring for 15 minutes at 1,500 rpm;

e- transferring the composition to a high-pressure homogeniser that has two chambers: the first one with a pressure of 1200 bar and the second one with a pressure of 120 bar. The mix is passed at least once through the equipment or for as many cycles as necessary, to obtain the average particle size between 50 and 200 nm.

The nanoemulsion is opaque by virtue of the emulsifying system used therein and may be added to skin care products such as moisturising lotions and products intended for hair care. It is stable without the need of a thickening agent so a liquid emulsion becomes feasible in a cosmetic product.

Title: Skin beautifier

US Patent: 8,920,822

Appl. No. 12/947,891

Date Granted: December 30, 2014

Assignee: Megmilk Snow Brand Co

The stratum corneum must contain 10 to 20% moisture to function normally and maintain a healthy condition. The moisture is retained in the stratum corneum by the skin barrier function and flexibility and elasticity of the skin are thereby maintained. When the moisture level decreases, the stratum corneum loses flexibility and is hardened. This causes chapping and roughened skin, which is not only a cosmetic problem of poor appearance but also a preliminary stage causing a skin disease. Improvement of roughened skin makes a dried skin surface soft and smooth and further leads to an improvement of fine wrinkles. Skin beauty can be achieved by increasing the moisture content of the skin or suppressing trans-epidermal moisture loss (TEWL).

Ceramides have skin-moisturising and protecting properties however there are problems such that ceramides applied to the skin cannot reach nor be absorbed in the skin due to a barrier of epidermal lipids and that cosmetic ingredients other than ceramides may cause irritation and inflammation.

The patent describes a skin beautifier containing sphingomyelin as an effective ingredient for supplying skin-moisturising and protecting effects, preventing and improving skin-roughness and a wrinkle-preventing effect by oral ingestion thereof.

Sphingomyelin accounts for about 30% of phospholipids in milk and has a structure in which phosphocholine is bonded to a ceramide skeleton composed of sphingosine and a fatty acid. It is absorbed through the small intestine into blood vessels when orally ingested. Sphingomyelin in the stratum granulosa of the skin is hydrolysed by sphingomyelinase into a ceramide to be supplied to the stratum corneum. The sphingomyelin may be blended with sugars, lipids, proteins, vitamins, minerals, and flavourings, which are generally used in medicines and food and with other components having an effect on beauty, for example, collagen which accelerates collagen production in the skin.

An animal study using mice showed that the moisture content of the skin was increased and the transepidermal water loss (TEWL) through skin was decreased by oral administration of 2-5 mg or more of sphingomyelin per kg of mouse body weight. This indicates that skin-moisturizing and protecting effects can be expected by administration of 2-5 mg or more of sphingomyelin per day for a human adult.

The following patents describe a method of curling hair, a method of straightening hair and a method of increasing apparent hair volume by a novel hair styling composition.

Title: Aqueous hair styling compositions comprising two acrylate silicone copolymers

US Patent: 9,034,305

Appl. No. 14/192,914

Date Granted: May 19, 2015

Assignee: ELC Management LLC

In the background to the patent the inventors claim that many commercial hair styling products use resins or gums to provide long term hold but they can make the hair sticky and stiff and are difficult to wash out. Thermoplastic elastomer copolymers provide measures of hold and flexibility and a more natural appearance but due to their low solubility in water, they are difficult to incorporate into shampoo and conditioner products.

To address the low solubility issue specific copolymer systems are described for water-based hair styling compositions that provide excellent flexibility and hold with a natural appearance. The compositions utilise a flexible polymer system comprising acrylates/dimethicone copolymer and dimethicone PEG-8 polyacrylate in specified ratios.

To determine the best concentrations of the acrylate silicone copolymers, shampoo and conditioner products were prepared that incorporated varying amounts of the hydrophilic copolymer dimethicone/PEG-8 acrylate, and the hydrophobic acrylates/dimethicone copolymer. These were then applied in a shampoo and after shampooing the hair was heat-styled to impart one or more curls to the head of hair. The hair tresses were evaluated for hold and flexibility under different conditions of heat and humidity to determine optimum ratios.

The first claim is a topical hair styling composition comprising: a cosmetically acceptable base having 40%-98% water; 0.5 to 5% acrylates/dimethicone copolymer and 0.1 to 1% dimethicone PEG-8 polyacrylate; wherein the ratio of acrylates/dimethicone copolymer to dimethicone PEG-8 polyacrylate is 2:1 to 23:1. Further claims specify ratios of acrylates/dimethicone copolymer to dimethicone PEG-8 polyacrylate as 4:1 to 18:1 and 6:1 to 9:1. However the results from shampoo

testing indicated that a ratio of about 4.85:1 is preferred but results are dependent on the shampoo and conditioner formulations.

Title: Composition and method for thermally activated hair treatment

US Patent: 8,673,276

Appl. No. 13/193,799

Date Granted: March 18, 2014

Assignee: Grant Industries, Inc.

The majority of hair styling and treatment systems use high concentrations of caustic or reducers and oxidizers to permanently wave or straighten the hair by rearranging disulphide linkages. Other methods rely on high levels of formaldehyde, gluteraldehyde or other mono and dialdehydes to crosslink or bind hydrolyzed proteins to the hair cuticle. Scalp exposure to aldehydes and other treatment chemicals may induce allergic reactions or irritation to individuals.

The patent claims to provide a new method of permanently straightening hair without damage that is completely aldehyde-free, pH balanced to the scalp and does not have to rely on any harsh chemicals such as caustic soda or a two part redox treatment to break and/or set disulphide linkages in the hair cortex.

The formulations comprise an effective amount of a silicone polymer that contains a high molar percent of mercapto-functionality, such that the silicone provides the hair with a straight, healthy appearance that is retained over multiple hair-washing cycles. The formulations may optionally include 1 to 10% by weight dimethylsulfone and 1 to 10% by weight urea and further comprise silanes or other silicones including amino-functional silicone compounds and typical ingredients commonly used in both conventional and thermal conditioning of hair. Fluorosilicones and fluoroalkylsilanes are particularly preferred as they yield a hydrophobic texture.

The mercapto-silicone is a class of polymeric material with excellent adhesion to the hair surface and contains a reactive mercapto/thiol group typically linked to silicone via an alkyl group, --RSH. Incorporating this into a hair treatment composition shows bonding to the hair but unless heated the effect is only temporary. However, if the hair is then thermally styled the --SH group spontaneously covalently bonds to hair keratin protein and forms intra/intermolecular-crosslinks. It is thought that atmospheric oxygen under this higher temperature condition further actives the --SH bond by auto-oxidation and can crosslink the polymer to a disulphide state, ultimately resulting in a more permanent bond on hair.

Hair keratin fibres contain a significant amount of --SH functionality in the form of cysteine amino acids found in the protein structure. Such keratin -SH groups bond directly to the mercapto-silicone under auto-oxidative conditions and the addition of hydrolyzed keratin proteins further enhances the straightening effect by forming a filler that more deeply cements the cuticles closed during the thermal treatment. The hydrolyzed keratin protein is present in an amount of up to 10% but preferably 0.2 to 6% by weight of the formulation.

Title: Leave-in hair styling product with particles for improving hair volume

Patent: EP2033618 A1

Appl. No. EP20070115292

Date Granted: Mar 11, 2009

Assignee: Wella Aktiengesellschaft

The patent describes a leave-in hair styling product that improves the volume of hair. The compositions comprise solid polyolefin particles such as polyethylene and polypropylene and at least one film-forming ingredient.

The particles preferably have a mean particle size of from 10 μm to 50 μm and a melting point above 160°C and comprise about 3% by weight of the final composition. They should be smooth and can be spherical, ovoid or ellipsoid in shape. Preferred film-forming ingredients are selected from the group consisting of cationic polymers and non-ionic vinyllactam polymers and mixtures thereof.

It is suggested that the film-forming ingredient attaches to the hair and particles are bound to the hair via the film-forming ingredient. Due to the size of the particles, neighbouring hairs are not able to lie close to each other as the particles form a "bridge" between the hairs, thus increasing its volume. Also, if hairs cross each other, the hairs are linked to each other via bridges of film-forming ingredients and particles, thereby further increasing hair volume. As the particles are not irregularly shaped, the particles impart a smooth touch to the hair.

Many possible additives are cited in the patent, which is liberally illustrated with example formulations.

In 1970 an English pastor and author of the "Loathsomeness of Long Haire" (1653), led a movement declaring that face painting was "the devil's work" and that women who put brush to mouth were trying to "ensnare others and to kindle a fire and flame of lust in the hearts of those who cast their eyes upon them." In 1770, the British Parliament passed a law condemning lipstick, stating that "women found guilty of seducing men into matrimony by a cosmetic means could be tried for witchcraft."

Title: Shiny, transfer resistant lipstick and method of making

US Patent: 9,138,388

Appl. No. 13/822,483

Date Granted: September 22, 2015

Assignee: Coty Inc.

The patent describes a method for imparting transfer resistance to a lipstick, comprising colorants, a coconut alkane mixture with a coconut gel of vegetable oil, Cocos nucifera oil, a styrene/butadiene copolymer and polyethylene. It is of particular interest as it describes the use of coconut alkanes as an alternative to cyclomethicone. The coconut alkanes is a volatile oily composition having from 50 to 100% by weight of a mixture of linear paraffins and most preferred are dodecane and tetradecane. They have a volatility within the same range as cyclomethicones, and form a film having a soft, non-greasy touch and a reduced gloss similar to those of cyclomethicones.

The pigments are added to the coconut alkanes and combined to form a paste. This is heated with the coconut gel to about 85 – 90°C and polyethylene, caprylyl glycol, and a mixture of Acacia decurrens/jojoba/sunflower seed wax with polyglyceryl 3-ester added to ensure the mixture of coconut gel and coconut alkanes is melted and homogenous. Optional ingredients such as fragrance and mica are added and the mass poured into lipstick moulds.

The transfer resistance of a lipstick made with the formulation described was evaluated by giving panellists a blinded lipstick sample to apply an even coat of the lipstick and to let it dry for fifteen

minutes. Each panellist was given a white tile to kiss using moderate pressure and three expert evaluators scored the amount of transfer, which showed the composition to meet the criteria necessary to claim transfer resistance.

Title: Lipstick

US Patent: 9,044,621

Appl. No. 13/471,026

Date Granted: June 2, 2015

Assignee: Mary Kay Inc.

Claimed is a lipstick composition that is substantive, does not pool on the lips, is easy to spread, and has effective amounts of actives to moisturise the lips, treat dry, chapped, or cracked lips, and reduce or prevent the appearance of lip wrinkles The lip-based product also has pleasant tactile properties and provides an aesthetically pleasing visual appearance on the lips.

The patent describes an anhydrous lipstick comprising a combination of active ingredients including Portulaca pilosa extract, 10-15% sunflower oil, 10-15% jojoba esters, 3-7% mango butter, and 0.1-1% tocopherol and a dermatologically acceptable carrier. Portulaca pilosa is a species of flowering plant native to the United States and the extract is part of a commercial mixture that includes a tri-peptide, cetearyl ethylhexanoate and sorbitan isostearate and sucrose cocoate.

The carrier is a mixture of glyceryl behenate/eicosadioate, 1-3% orange peel wax, 3-7% Limnanthes alba seed oil with Butyrospermum parkii, 3-7% ethyl macadamiate, 2-5% sucrose acetate isobutyrate, 1-5% sunflower wax, 3-7% candelilla wax, 2-5% beeswax, 5-10% titanium dioxide,2-5% mica silk, and 13-17% castor oil.

The composition described was used daily by 181 women over a one-week period after which 75% of the testers stated that their lips felt moisturised all day long. 92% indicated that the formulation felt soothing, moisturising, and comforting on lips, thereby confirming the pleasant tactile properties of the formulation. 76% indicated that their lips appeared younger, voluptuous and line-free; 85% stated that the formulation replenished and conditioned their lips, leaving them looking healthy and 87% stated that their lips looked smoother and felt supple. The patent also describes many instrumental tests used to prove the product claims.

Title: Solid cosmetic composition

US Patent: 8,604,079

Appl. No. 12/039,200

Date Granted: December 10, 2013Assignee: Nature Cosmeticos S.A.

According to the applicants lipsticks are a complex mixture of solids, semisolids and liquids, such as waxes and emollients that often exude oils and undergo oxidation, rendering their appearance and odour unsatisfactory. Compositions containing structural agents such as waxes may appear heavy when applied to the lips. Other types of lipsticks that use mixtures with linear structural agents exhibit a non-satisfactory spreadability and lipsticks with a high concentration of emollients have the problem of flowing through the lips' edges, in addition to having low fixation power.

Many of these problems related to a poor fixation of the product and its unpleasant feeling on the skin also occurs with other cosmetic compositions such as blushers and eye shadows. It is the claim of the

applicants to provide a solid cosmetic composition that can be applied in the form of a bullet or a stick and provide the user with a feeling of not using any product.

The patent describes a solid cosmetic composition comprising, as a structure agent, a combination of a saturated straight-chain polymer and an agglutinating agent for this polymer. The structure agent consists of a combination of a linear polyethylene with a molecular weight of approximately 400 Daltons and tribehenin as the agglutinating agent. It also contains at least two film forming agents comprising trimethyl siloxysilicate dissolved in cyclomethicone and dimethiconol fluoroalcohol dilinoleic acid.

Compounds that inhibit oily characteristics of the composition may also be used, such as hydrogenated polyisobutene and isononyl isononanoate and compounds that provide treatment benefits such as maintenance of skin hydration and anti-free radical action. When formulated as a lipstick it may include phenylethyl dimethicone that promotes the achievement of luminosity on the lips and ground pigments dispersed in triisostearoyl citrate, which provides a luminosity increase in the colour of the product.

Chemical and physical sunscreens to provide a sun protection factor (SPF) suitable for the final use, may also be added. The composition is characterised by the absence of mineral, vegetable, and animal waxes yet has a rigid, mouldable and stable structure, being suitable for application as, for example, lipstick, blusher, eye shadow, lip protectors, deodorants, and perfumes.

Three patents describing products that may be used in a Spa or for home application.

Title: Body cosmetics for wetted skin

US Patent: 8,933,125

Appl. No. 12/672,287

Date Granted: January 13, 2015

Assignee: Kao Corp

The inventors claim that it is common for people to suffer from dry skin over the whole body and it would be advantageous if a moisturising lotion could be applied to wetted skin after a bath or shower. The patent describes a body cosmetic for application to wetted skin after bathing, which provides high moisturising effects, spreads well over the body, and is easy to apply. It contains a water-soluble polymer in an oil-in-water {o/w} emulsion.

The oil phase contains petrolatum and/or mineral oil and a polar oil and forms from 25% to 35% by weight of the composition. The polar oil may be selected from an extensive list but preferred are higher fatty acids with 12 to 28 carbon atoms, such as isostearic, oleic, linolenic and linoleic acid. Examples of higher alcohols include those with 12 to 28 carbon atoms, such as oleyl alcohol. In addition to the polar and non-polar items mentioned the oil phase may contain other oils and waxes to improve the products sensorial and stability properties.

Almost every water-soluble polymer in common usage in cosmetics is named but alkyl-modified carboxyvinyl polymers, carboxyvinyl polymers, and carboxymethylcellulose are said to be more preferable to provide stability and ready dispersion during dilution of the o/w emulsion and the selected polymer is added at from 0.05% to 5%.

The aqueous phase contains at least 11% glycerin and preferably from 15% to 35% and is necessary to provide the moisturising effect of the composition. It may further contain an alcohol such as ethyl

alcohol, propylene glycol, 1,3-butylene glycol, dipropylene glycol, and sorbitol. Other ingredients include anti-inflammatory agents, UV blocking agents, skin-lightening agents etc.

The final composition preferably contains a water-insoluble powder to improve the skin feeling upon application. Among the many named, talc, sericite, mica, kaolin, and silicone powder are preferred and may be present up to 25% by weight.

When applied to wetted skin, the composition releases the o/w emulsion and the oil phase and glycerin are uniformly spread on the skin such that the ingredients synergistically provide high moisturising effects and a smooth feeling which lasts for a long time. After application, the body cosmetic may be rinsed off in a shower, however it is preferred that it is dried with a towel and to be left on the skin.

Title: Topical formulation for the treatment of cellulite

US Patent: 8,501,203

Appl. No. 12/733,453

Date Granted: August 6, 2013

Assignee: Chronolife S.r.l.

Cellulite is a disease having an evolving character, which develops from anatomic, hormonal and metabolic features, in conjunction with events such as a wrong diet, sedentariness, venous pathologies and hormonal therapies.

The patent describes a topical formulation for the treatment of cellulite comprising alfalfa herb and derivatives thereof and melatonin. The patent also refers to a method of application of the formulation with vegetal or mineral mud for the treatment of cellulite.

Alfalfa herb contains vitamins and minerals and also enzymes, isoflavones and phytoestrogens and alkaloids such as asparagine and trigonelline. Amongst the known effects of alfalfa herb is a-well acknowledged lipopenic effect. In particular alfalfa herb prevents the formation of atheroma [fatty deposits] in the presence of hypercholesterolemia.

The alfalfa herb is preferably present between 5 and 10% by weight and the concentration of melatonin is preferably between 0.01 and 0.05% by weight. Melatonin is a strong antioxidant with a very good action of stimulus of the immune system. The synthesis of melatonin is influenced by physical activity, sleep, time and kind of meals, stress and menstrual cycle. It has an important role together with other substances in maintaining the equilibrium of the neuro-immuno-endocrine system.

The formulation also further comprises water, excipients and one or more natural substances such as ginkgo biloba, avocado, blueberry, centella, fucus, glycerin and caffeine, extract of Centella asiatica, escine, tocopherol, dextrin, lecithin, tocopherol acetate, phospholipids, cyclodextrins, oils and natural active principles.

The selected ingredients are mixed with naturally occurring clays, seaweeds and active thermal water to form a mud-like composition. This is applied to the areas affected by cellulite or localised adiposity by massaging until complete absorption of the formulation.

Title: Oil blend for skin treatment

US Patent: 8,932,656

Appl. No. 13/594,008

Date Granted: January 13, 2015

Assignee: Henderson; Aja

The patent describes a blend of oils for soothing the skin. It includes 38% unrefined virgin coconut (Cocos nucifera) oil, 19% extra virgin olive oil, 19 % jojoba (Simmondsia chinensis) oil, 19 % calendula oil, 1 % tea tree (Melaleuca) oil, 0.1 to 1.0 % German chamomile (Matricaria chamomilla) extract, 1% lavender oil and about 0.1 to 1.0 % mixed tocopherol oil; all % are by volume and approximate. The mixed tocopherol oil is free of soy and corn oils, and the composition does not contain water-soluble actives. The preferred ingredients used in this blend of oils are pure and organic and this was found to be critical to the effectiveness of the desired blend.

Tea tree oil and lavender oil are considered anti-bacterial. Coconut oil and tea tree oil are considered anti-fungal. Olive oil, jojoba oil and calendula oil are considered soothing to the skin. German chamomile extract provides mild pain relief. Vitamin E is thought to promote healing.

Coconut oil is thought to be anti-fungal and therefore the primary component. Coconut oil is solid below 74° F. and a solid or semi-solid mixture was undesirable. The blend was varied to maximize the amount of coconut oil while keeping the mixture a liquid at room temperature. It was determined that up to about 40% coconut oil could be used without the blend solidifying, which in turn resulted in separation. Below about 70° F., the product did begin to solidify, but no separation was observed.

The extra virgin olive oil, jojoba oil and calendula oil act as carriers for the other oils and are therefore optional. However, adding one or more of them to the blend does provide a product that is easier to handle and store.

The blend of oils is suitable for soothing and treating skin rashes, including yeast-caused rashes, or preventing skin rashes such as eczema, dry skin or other skin conditions.

Shower gels that deliver additional benefits to that of cleansing by providing controlled release of skin benefit agents are the focus of the following abstracts.

Title: Compositions for delivering perfume to the skin

US Patent: 8,895,041

Appl. No. 13/428,347

Date Granted: November 25, 2014

Assignee: The Procter & Gamble Company

Described is a cleansing composition comprising at least 5% of a surfactant, about 25% water and a cyclodextrin complex containing perfume.

The surfactant phase is a structured domain that comprises a surfactant and optionally a co-surfactant. The structured domain is preferably a lamellar phase that provides resistance to shear and adequate yield to suspend particles and droplets. The lamellar phase tends to have a viscosity that minimises the need for viscosity modifiers. The preferred surfactant is sodium trideceth sulphate with two moles of ethoxylation, which exists as a lamellar phase up to about 13% dilution. Further dilution causes its transition to a micellar structure.

In the preamble the applicants state that perfumes are often associated with body washes to make their aroma pleasing to a user and to perfume the skin, however most of the perfume is rinsed away. There is a need to provide a body wash with a perfume composition that deposits more efficiently and is capable of lasting beyond the initial cleansing of the user.

The applicants suggest that cyclodextrin-fragrance complexes release their perfume content based on dilution. The dilution required for release of a fragrance is high enough to enable formulation of a stable neat fragrance complex in an aqueous surfactant environment. Release on further dilution in the shower creates the effect of changing fragrance character during the shower or releasing much later in the day on skin.

The ability to tailor release by the effect desired is highly dependent on the perfume molecule choice and the strength of the cyclodextrin complex formed and the patent lists an extensive number of suitable perfume ingredients.

The final composition may also contain zinc pyrithione and a secondary surfactant such as cocamidopropyl betaine. Stability is improved by the addition of an associative polymer such as acrylates/C10-30 alkyl acrylates crosspolymer and an organic cationic polymer such as polyquaternium-10 or guar hydroxypropyltrimonium chloride aid deposition of the cyclodextrin/fragrance material. The balance of the composition comprises a so-called “benefit phase”, which is an oil or mixture of oils that form a second phase prior to shaking by the user.

Title: SPF liquid cleansing compositions

US Patent: 8,877,166

Appl. No. 12/344,042

Date Granted: November 4, 2014

Assignee: Cockerell Dermatology Development, Ltd.

The patent relates to a facial or body wash composition that after rinsing provides a sun protection factor of at least about 6. It comprises red petrolatum; at least one metal oxide sunscreen and at least one organic sunscreen agent. It also contains at least one lathering anionic surfactant; at least one lathering non-ionic surfactant; an alkyl silicone and a volatile cyclic silicone**.**

Preferred metal oxide sunscreens are micronised titanium dioxide surface treated with triethoxycaprylylsilane available from Degussa as TEGO Sun T 805, and micronised zinc oxide surface-treated with an alkoxycaprylylsilane available from BASF as Z-Cote HP1. The two metal oxides are preferably present at a combined concentration of about 9% with the zinc oxide being about 7.5% and titanium dioxide about 1.5%. The preferred organic sunscreen is octocrylene. Red petrolatum is described as being essential to the composition and is preferably present from about 7% to about 9%.

Preferably, the composition contains sodium laureth sulfate at a concentration of from about 10% to about 15% with ammonium lauryl sulfate at about 5% - 10% plus decyl glucoside at about 7.5% to 8.5%. The preferred non-lathering non-ionic surfactant is steareth-21 and the stability of the composition is improved by the addition of up to 5% of a sodium acrylates copolymer.

The preferred alkyl silicones present at about 1% are C30-45 alkyl methicone or phenyl isopropyl dimethicone and the preferred cyclomethicone is cyclopentasiloxane. The final composition may also contain rheology modifiers, pH modifiers, moisturisers, humectants, emollients, structuring agents, stabilisers, lubricants, fragrances and preservatives or colouring agents. A further addition is melanin or a melanin precursor.

Title: Deodorising and skin cleaning

US Patent: 8,834,857

Appl. No. 13/374,856

Date Granted: September 16, 2014

Assignee: Nevada Naturals Inc.

Claimed is a method for cleaning, benefiting, or deodorising skin utilising a body wash formulation containing a controlled release skin benefit or deodorising salt, a hydrophilic moisturising polymer and surfactants. The controlled release salts provide a reservoir of ions which can benefit or deodorise the skin and thus maintain a long term skin benefit or extended deodorising activity.

The controlled release salts and complexes are formed from cationic and anionic moieties either or both of which can provide benefits when released. Their solubility is such that when a salt is exposed to moisture, it partially dissolves and dissociates in the sweat or other moisture present on the skin. The active portion of the salt is released in sufficient quantity to provide the desired beneficial effect, while at the same time leaving sufficient residual undissolved salt to act as a reservoir for the controlled release of additional active portions from the salt as the dissolved skin-benefit agents are depleted.

The controlled release salt has solubility of less than 2%, preferably equal to or less than 1% and greater than about 0.01%. The limited solubility property of the controlled release salt is key to its effectiveness in formulations as much of the delivered undissociated salt remains on the surface of the skim. Once on the skin, the controlled-release salt needs to have sufficient solubility in the skin moisture to release an effective quantity of skin-benefit ions.

Cationic and anionic skin benefit agents can be combined into a single controlled release salt to provide agents with multiple long lasting skin benefits. Alternatively an ionic skin benefit agent can be combined with an inactive counter-ion to provide improved adherence to the skin or to modify the controlled release characteristics of the salt.

Possible controlled release salts are discussed at great length in the patent and the applicants favour those based on amino acids with the laurate salt of N-(C8-C18) lauroyl arginine ethyl ester being named as a particularly useful example of a controlled-release salt, which delivers a skin conditioning, skin smoothing emollient.

The surfactants and other ingredients of the body wash are also described in detail and readers interested in the concept provided by this patent are advised to obtain a copy.

One patent describing the inhibition of body hair growth and two describing compositions to treat stretch marks and other skin problems.

Title: Treating method for suppressing hair growth

US Patent: 7,211,278

Appl. No. 10/777,976

Date Granted: May 1, 2007

Assignee: Kao Corporation

The patent describes a treating method for hair growth inhibition, which comprises administering an extract of Juniperus communis or Juniperus virginiana, an elastase inhibitor or neutral endopeptidase inhibitor, and at least one proteolytic enzyme.

In recent years various body hair removing methods have been developed and utilised including using a shaver, hair-tweezers or uprooting the hair by using a depilatory. These methods however give a physical or chemical stimulus to the skin and their effects do not last permanently. The stated aim of this patent is to provide a method for hair growth inhibition that is capable of effectively suppressing the growth of body hair and thereby decreasing the frequency of removal.

The leaves and fruit of Juniperus communis or Juniperus virginiana are extracted with alcohol and this is added to a hair removal composition in an amount from 0.0001% to 10%, based on its dry solids content. The composition may also contain an elastase inhibitor and an extensive list includes phosphonic acid derivatives. mercaptopropionic amide derivatives and ginger rhizome, hydrolyzed almond, birch, clove, rose hip, hawthorn, white birch and gambir extracts. Alternatively it may contain a neutral endopipetidase, which is an enzyme for decomposing opioid peptides such as enkephalins. Examples are malic acid, hydroxamic acid and mercaptopropionylamide derivatives but many others are listed.

The proteolytic enzyme is selected from the group consisting of papain, trypsin, hymotrypsin, pepsin, bromelain, ficin and pancreatin and is present at up to 3%, based on its solids content. In addition the composition may contain a keratolytic agent and calcium thioglycolate is particularly preferred at 0.05 to 5%. The composition may take any product form suitable for topical application to human skin and example formulations of creams, foams and a lotion are given.

Title: Anti-stretch mark active agent, and compositions containing same

US Patent: 8,765,198

Appl. No. 13/128,103

Date Granted: July 1, 2014

Assignee: Laboratoires Expanscience

Stretch marks, striae distensae, are cutaneous lines or bands that appear following excessive distension of the skin caused by weight gain, pregnancy and hormonal changes. Pregnancy-related stretch marks occur in particular on the anterior surface of the abdomen, but they also occur on the breasts, thighs and hips. They arise due to fast and sudden stretching of the skin and each stretch mark resembles a tear of the skin. It is the dermal tissue which is actually altered, and the target cell of this damage is the fibroblast.

Considering the physiopathology of stretch marks, the prevention and reduction of nascent stretch marks related to pregnancy requires the use of a product that targets dermal fibroblasts by activating cell proliferation and stimulating their metabolism, in particular that of collagen and elastin, which are responsible for skin elasticity and tonicity. Additionally it is also necessary to limit the inflammation that participates in the degradation of collagen and elastin in the dermal matrix.

The patent describes a method for the cosmetic prevention and/or treatment of stretch marks on the skin by administering a composition containing arabinogalactan as an active principle in a cosmetic composition that can be administered in a topical or oral manner. Due to its non-irritating and moisturising properties, arabinogalactan makes it possible to significantly reduce insensible water loss. In addition, this polysaccharide has intrinsic exfoliation capacity and these combined actions promote cell renewal.

The arabinogalactan is extracted from larch and is present in the composition at between 1 – 5% by weight, compared to the total weight of the composition. The composition may also contain at least

one other anti-stretch mark agent selected from the group consisting of: lupeol, soya peptides, tripeptides composed of the amino acids glycine, histidine and lysine, sophora flower extract, chlorophyceae extract, peptide extract of avocado and panthenol and mixtures thereof.

The preferred lupeol composition is composed of 5% lupin (Lupinus albus) extract and 95% Helianthus annuus, seed oil. Lupeol promotes the production of collagen by cells, and acts on fibroblasts by "relaxing" them so the skin is better prepared to face mechanical stresses. Soya peptides can be any peptide obtained by hydrolysis of proteins extracted from soya and they have an elasticity regulation action, which makes it possible to promote skin elasticity. Sophora japonica, flower extract is rich in flavonoids and rutin that contribute to the anti-stretch mark action and takes part in controlling the vascularization of stretch marks and thus their colour. Chlorophyceae extract has a soothing action that reduces desquamation, the feeling of skin tightness and erythema and it improves the comfort of delicate, sensitive and dry skin. Many other ingredients are listed and their beneficial action on skin is described however, the preferred composition contains arabinogalactan, lupeol, soya peptides and a peptide extract of avocado.

Almost any cosmetic composition suitable for topical application can be used to administer the active ingredients. They may also be taken orally in the form of tablets, capsules or pills or in dietary supplements.

Title: Vitamin C composition for use in the prevention and treatment of stretch marks and other skin conditions and methods of using the same

US Patent: 8,969,411

Appl. No. 13/738,295

Date Granted: March 3, 2015

Assignee: Kaplan; David L.

Ascorbic acid, commonly known as vitamin C, is an antioxidant and plays a vital role in human physiology. It is an essential cofactor in the hydroxylation of proline and lysine to form hydroxyproline and hydroxylysine amino acids necessary for the function of collagen. However its antioxidant properties render it difficult to create a stable vitamin C formulation as it rapidly oxidises upon exposure to air, especially in the presence of water.

The patent describes a formulation for a stable ascorbic acid composition comprising ascorbic acid in solution with a hygroscopic compound. Such compounds may be used for the prevention, inhibition and treatment of stretch marks, dermatitis, lentigoes, sun-damage induced hyperpigmentation, cellulite and scars. Among other skin diseases or conditions they may also be used for skin firming and muscle, tendon and ligament improvement and repair.

The vitamin C composition as described may be combined with other ingredients as shown in the table.

Ingredient	Min. % w/w	Max % w/w
Glycerin	85	90
Ascorbic acid	5	15
A silicone-based organic polymer e.g. dimethicone or cyclomethicone	0	3
Alpha-lipoic acid	0	5

Panthenol	0	10
Tocopherol or derivative	0	5
Ethanol	0	10
Propylene glycol	0	10

Various combinations of these ingredients are described and it is claimed that they will remain stable for least one year and some combinations remain stable for up to four years.

The term nutraceutical was coined in the 1990's by Dr. Stephen DeFelice. He defined nutraceutical as: 'A nutraceutical is any substance that is a food or a part of a food and provides medical or health benefits, including the prevention and treatment of disease.

The following patent abstracts describe nutraceutical products that make cosmetic claims.

Title: Use of sulphated oligosaccharides as slimming cosmetic ingredients

US Patent: 8,604,001

Appl. No. 13/429,478

Date Granted: December 10, 2013

Assignee: BASF Beauty Care Solutions France

The patent describes a preparation comprising sulphated oligosaccharides which trap spermine or spermidine or both, as an active slimming ingredient in a cosmetic, pharmaceutical or nutraceutical composition with a slimming effect.

Spermine and spermidine are polyamines that are present in adipose tissue and especially in adipocytes. In-vitro, these polyamines are known to stimulate three major enzymes of the lipogenesis process, a name given to the process of storing fatty acids in the form of triglycerides in the adipocytes.

Reference to documented evidence in the patent supports the theory that spermine and spermidine foster the storage of fats in the adipocytes and inhibit the liberation of these fats via inhibition of lipolysis. The applicants propose that if these two polyamines are blocked, the expected effect would be an inhibition of the lipogenesis process and stimulation of lipolysis, resulting in an overall slimming effect.

Trapping of spermine and/or spermidine enables not only reduction of lipogenesis and therefore a decrease in the storage of fats, but also an increase in lipolysis. This increase in lipolysis fosters the breakdown of fats thereby there is a twofold action towards a slimming effect. The applicants claim that sulphated polysaccharides belonging to the family of sulphated galactans, as for example carrageenans or agars, have shown unexpected effectiveness. These compounds can be advantageously prepared by acid hydrolysis of kappa carrageenans,

Typically, the solution of sulphated oligosaccharides is used at a concentration between about 0.1 - 5% in weight of the final composition and at a pH of 3.5 - 5. The solution of oligosaccharides is possibly in the form of a gel or hydrogel. The patent describes topical application and the inclusion of other advantageous slimming actives at great length.

It also describes the preparation of a tablet for oral use comprising 35.9% lactose 24.0% saccharose plus the solution of sulphated oligosaccharides. The tablet is then dried and administered orally to deliver a slimming effect.

Title: Nutraceutical and pharmaceutical compositions and use thereof for the treatment, co-treatment or prevention of inflammatory disorders

US Patent: 8,158,681

Appl. No. 12/279,510

Date Granted: April 17, 2012

Assignee: IP Assets B.V. (Heerlen, NL)

Acute and chronic inflammation resulting from an excessive biosynthesis of inflammatory mediators is involved in numerous inflammatory disorders. Inflammation is in general a localised protective response of the body tissues to invasion of the host by foreign material or injurious stimuli and characterised by pain, redness, swelling and heat. The patent describes novel compositions comprising methoxylated aromatic compounds and the use of these compositions as a medicament for the treatment, co-treatment or prevention of inflammatory disorders

One of the disorders is psoriasis, which is one of the most common skin problems, affecting 1-3% of the human population. Other inflammatory disorders are heart disease, multiple sclerosis, osteo- and rheumatoid arthritis, atherosclerosis, and osteoporosis.

Two mains classes of drugs, the corticosteroid and the nonsteroidal anti-inflammatory drugs (NSAIDs) are used to treat inflammatory disorders but there are concerns about the serious side effects of prolonged use. Therefore, there is a need for new anti-inflammatory agents and patients with inflammatory diseases have a special interest in treatment considered as "natural" with mild anti-inflammatory effects and without major side effects.

The inventors claim that the methoxylated aromatic compounds 2-hydroxy-4-methoxy-3-(2-hydroxy-3-methyl-3-butenyl)-6-(2-phenylethyl)-be-nzoic acid and 2-hydroxy-4-methoxy-3-(2-hydroxy-3-methyl-3-butenyl)-6-pentyl-benzoic acid have anti-inflammatory properties and can be isolated from Glycyrrhiza foetida. The methoxylated aromatic compounds are preferably used in a concentration so that the daily consumption by a human adult weighing about 70 kg is preferably in the range of from 5 mg/day to 500 mg/day.

Dermatological and cosmetic compositions for topical application are also described at length and it is suggested that oral and topical application may be combined. The compositions for the treatment, co-treatment or prevention of inflammation of the skin may be in a form that is conventional for oral administration such as in beauty foods and supplements.

Title: Muscadine compositions with improved anti-oxidant activity

US Patent: 8,911,804

Appl. No. 14/034,375

Date Granted: December 16, 2014

Assignee: Shaklee Corporation

The patent describes a method of inhibiting free radical formation and free radical activity, by administering to a subject a composition comprising a muscadine (Vitis rotundifolia) pomace extract with resveratrol extracted from Japanese knotweed. The composition also contains an elderberry

extract, a purple carrot extract or a combination thereof, and an excipient. The composition is provided in a non-beverage food, a beverage, liquid or solid dietary supplement or topical ointment.

Apart from the classic antioxidant vitamins C and E, plants contain a number of polyphenols that appear to lower oxidative stress both acutely and chronically upon consumption. Several in-vitro assays have been developed to measure the antioxidant capacity of different foods and there is a strong correlation between polyphenol content and antioxidant capacity.

The inventors determined the antioxidant capacity of a muscadine pomace extract and a Japanese knotweed extract separately and in combination as measured by an Oxygen Radical Absorbance Capacity (ORAC) assay. These studies demonstrated a strong synergistic effect between the two extracts in a dietary supplement in producing lipophilic antioxidant capacity.

In a particular example, the composition includes about 28.9% muscadine pomace extract containing about 4.1% polyphenols; about 1.65% resveratrol, about 1.6% purple carrot extract; about 0.48% elderberry extract; 54.8% sorbitol; about 10% glycerin and 2% colloidal silicon dioxide. It also contained Concord grape extract at about 1.27%, Cabernet grape extract at about 0.16% and red grape powder at about 0.48%; all % are by weight.

It is claimed that the composition can be used for preventing or inhibiting cellular aging or to inhibit one or more processes associated with cellular aging, such as free radical formation or activity in the subject that ingests the composition.

Teenage skin is prone to problems, especially acne and others caused by increased seborrheic activity and blocked pores. It needs to be treated carefully, without causing irritation. The following patents describe two mild cleansing compositions and a two-part composition for the treatment of skin problems.

Teenage skin is prone to problems, especially acne and others caused by increased seborrheic activity and blocked pores. It needs to be treated carefully, without causing irritation. The following patents describe two mild cleansing compositions and a two-part composition for the treatment of skin problems.

Title: Method and skin cleansing compositions for dermatological basic treatment

US Patent: 7,544,366

Appl. No. 10/747,382

Date Granted: June 9, 2009

Assignee: Permamed AG

All dermatological treatments should begin with skin cleansing. However, the wrong type of skin cleansing can jeopardise the success of a treatment. In particular, cleansing that is too vigorous, which exposes the skin to extremes of pH, or which removes skin lipids can cause skin damage.

The patent describes pre-treating the skin with a composition that comprises a mild surfactant mixture, an anti-microbial agent, a buffer that adjusts the skin pH to slightly acidic and an agent that forms a protective layer on the skin. This basic treatment combines mild cleansing and sanitising, restoring lipids, and providing a protective coating to the skin. Basic treatment may be followed by appropriate dermatological therapy and suitable compositions are described.

The mild surfactant mixture consists of disodium cocoamphodiacetate, cocamidopropyl hydroxysultaine, disodium laureth sulfosuccinate, and decyl glucoside. The preferred mixture of lipid-

regenerating agents comprises coceth-6 with glyceryl oleate and polyquaternium-2. Particularly preferred as an anti-microbial agent is disodium undecylenamido MEA-sulfosuccinate.

The patent claims very wide margins for the % level of these and other ingredients but preferred are:-

Ingredient	Minimum %	Maximum %
Disodium undecylenamido MEA-sulfosuccinate	2.0	4.0
Coceth-6	2.0	7.0
Glyceryl oleate	0.3	2.5
Polyquaternium-2	0.4	1.3
Citric acid	0.2	2.0
Sodium citrate	0.2	2.0
Disodium cocoamphodiacetate	4.0	8.0
Cocamidopropyl hydroxysultaine	0.4	6.0
Disodium laureth sulfosuccinate	1.0	3.0
Decyl glucoside	4.0	8.0
PEG-20	1.0	6.0
Glycerin	10.0	30.0
PEG-120 methyl glucose dioleate	1.0	5.0
Laureth-9	4.0	6.0

The citric acid/sodium citrate buffer system may be replaced with lactic acid/sodium lactate.

Various formulations are shown for the treatment of dry or sensitive skin and to soothe skin, achieved by varying the levels of the basic ingredients.

Title: Foamable composition essentially free of pharmaceutically active ingredients for the treatment of human skin

US Patent: 8,986,658

Appl. No. 14/142,039

Date Granted: March 24, 2015

Assignee: Intendis GmbH

The patent describes a pharmaceutical composition which is essentially free of pharmaceutically active ingredients for the treatment of human skin, especially in the treatment of rosacea, acne, atopic dermatitis, contact dermatitis, perioral dermatitis, psoriasis or neurodermitis, as well as for prophylactic and/or cosmetic purposes.

The composition contains one or more emollients, stabilisers, preservatives, emulsifiers, foam stabilisers, moisturisers and propellants. The preferred ingredients with their preferred range shown in % by weight is in the following table.

Ingredient	Min %	Max %	Function
Caprylic/capric triglyceride	10.00	12.00	emollient
Cetostearyl alcohol	1.20	1.00	stabiliser
Glyceryl stearate	0.44	0.55	stabiliser
Benzoic acid	0.10	0.12	preservative

PEG-40 stearate	3.00	2.60	emulsifier
Methylcellulose	0.08	0.18	foam stabiliser
Xanthan gum	1.00	0.95	foam stabiliser
Polysorbate 80	1.00	0.95	emulsifier
Dimethyl isosorbide	5.35	6.00	moisturiser
Propylene glycol	12.00	12.25	moisturiser
Sodium hydroxide to pH 4.5	qs	qs	pH adjuster
Purified water to 100%	qs	qs	
Propellant blend	8.00	9.00	

The propellant blend appears to be any combination of currently used aerosol propellants and the composition is packed in an aerosol container with a foaming nozzle.

In clinical tests it was shown that foamable compositions according to the formulations shown have beneficial properties, especially in the treatment of rosacea. It was very surprising to note that this therapeutic effect was achieved without application of any pharmaceutically active ingredients. The foamable compositions may also be used for a cosmetic treatment of the human skin.

Title: Multifunctional topical formulation for the treatment of acne vulgaris and other skin conditions

US Patent: 8,932,650

Appl. No. 13/762,829

Date Granted: January 13, 2015

Assignee: Kantian Skincare LLC

The patent describes a two-part aqueous composition for treating skin ailments. It comprises an acidic lotion containing salicylic acid and an alpha.-hydroxy acid, and an alkaline part having an alkaline nitrite salt. Upon combination of both phases, either initially ex-vivo or on the skin after sequential application of the two parts, it creates a mixture of at least three beneficial acidic substances. These compositions are a complex of various powerful antimicrobial and keratolytic agents, where several of the acid substances serve more than one of these functions, claim the applicants.

The .alpha.-hydroxy acid is preferably glycolic acid, lactic acid, malic acid, mandelic acid or a combination thereof. The alkaline nitrite salt is preferably sodium nitrite present at about 0.75 – 1.5%. The two parts may either be mixed with one another then applied to an affected portion of a patient's skin or, alternatively, may be sequentially applied to the affected portion of the patient's skin, preferably within 15 minutes of one another.

The areas in which this technology can find application includes the broad range of topical skin infections and disinfection, as well as conditions which involve both pathogenic microorganisms and physiologic dysfunction, and often a combination of both such as acne vulgaris, Acne is a common skin disease that is characterised by areas of skin with seborrhoea, comedones, papules, pustules and often scarring and in most cases acne is an inflammatory condition.

The most common material used for the treatment of acne is salicylic acid, which has keratolytic activity. Salicylic acid can "dissolve" skin tissue overlying the papules, pustules, etc., associated with the acne condition. In so doing, it promotes drainage of the blocked sebaceous glands and reduces the

resulting inflammatory potential. Associated with the keratolytic activity of salicylic acid is a recognized skin irritancy and the FDA only allows salicylic acid to be used in acne medications at levels no greater than 2.0%.

Alpha-hydroxy acids are also keratolytic. The most commonly used are glycolic acid and lactic acid. Because of concerns over the side effects of certain common .alpha.-hydroxy acids, in 1997, the FDA specified that glycolic and lactic AHA concentrations in the product be 10% or less, its pH be 3.5 or higher, and it must have an effective sunscreen in the formulation or warn people to use sunscreen products. Mandelic acid, is a known keratolytic acid with powerful germicidal activity, particularly against the P. acnes and is included in the acidic composition at 0.75% to about 2.0%. It appears to be less irritant than glycolic or lactic acid.

It is preferable to incorporate a thickening agent to one or both parts of the two-part system, to add "body" to the composition. When the compositions are brought together nitrous acid is formed, which exhibits a great germicidal rapidity against a broad spectrum of bacteria and fungi.

Title: Topical compositions and methods for treating pseudofolliculitis barbae and ingrown hair

US Patent: 6,703,009

Appl. No. 10/042,759

Date Granted: March 9, 2004

Assignee: Tendskin International Inc.

Pseudofolliculitis barbae is the clinical name given to the condition caused by the ingrowth of emerged hairs back into the skin at a location adjacent to the follicle from which the hair has emerged This penetration back into the skin causes an antigenic foreign body reaction at the point of penetration, resulting in lesions consisting of firm papules and pustules in which the ingrown hair can become buried. Infections can become superimposed upon this basic state, augmenting the inflammatory reaction. Pseudofolliculitis barbae is caused by shaving strong and highly curved hairs and further shaving becomes difficult and painful.

The patent describes topical compositions and methods for the treatment of pseudofolliculitis barbae and ingrown hair. The compositions comprise acetylsalicylic acid dissolved in a solvent mixture comprising propylene glycol, glycerine, and isopropyl alcohol.

The proportions that appear to be the most effective and soothing to the skin are acetylsalicylic acid at from about 15% w/v to a maximum of 18% w/v and the propylene glycol about 10% v/v, glycerine about 2% v/v and the balance of the volume substantially made up with isopropyl alcohol or a solution of isopropyl alcohol and water, provided that the isopropyl alcohol is at least about 70 % v/v of the solution of isopropyl alcohol and water.

It is suggested that the acetylsalicylic acid is important for softening and reducing the degree of curvature in the hair. Thus, the treated hair has neither the mechanical strength nor the high degree of curvature necessary to penetrate the skin or follicle wall, thereby reducing or eliminating the basic cause of pseudofolliculitis barbae and ingrown hair. Propylene glycol is a solvent carrier for the acetylsalicylic acid with moisturising and emollient properties. Glycerine is a mild astringent that causes increased blood flow to the skin and allows the propylene glycol to carry the acetylsalicylic acid into the epidermis and hair follicles.

Isopropyl alcohol or a solution of isopropyl alcohol and water serves as a bulk solvent for applying the other ingredients of the composition to the beard areas of the face. Isopropyl

alcohol also serves to dissolve oils and grease thus cleaning the skin and permitting more intimate contact of the other ingredients with the skin. The compositions may include other ingredients to improve the aesthetics and shelf life of the composition.

Title: Method of shaving using salicylic acid derivatives

US Patent: 8,663,614

Appl. No. 12/575,176

Date Granted: March 4, 2014

Assignee: L'Oreal

The patent describes a method of shaving the facial skin of men using a composition containing, in a cosmetically acceptable medium, at least one salicylic acid derivative. In the introduction the applicants suggest that the beard of an adult man comprises on average from 8,000 to 25,000 hairs. Shaving should be daily, in particular in the morning, since the beard grows approximately 0.4 mm in 24 hours. If the residues of a shave are analysed, 50% hairs and 50% dead cells are observed. The passing of the blade therefore has two simultaneous actions: cutting the hair and exfoliating the skin surface.

Shaving is traumatic for the skin and there exists a need to have cosmetic compositions capable of preparing the skin for shaving and also of facilitating shaving. The applicants aim specifically to offer a method of shaving which makes it possible to cause swelling of the hair, to reduce the firmness thereof so as to facilitate the passing of the blade, and to reduce the forces for bending the hair during shaving.

The most preferred salicylic acid derivative is 5-n-octanoylsalicylic acid, also known as capryloylsalicylic acid, and its most preferred concentration is 0.1 – 1% by weight in the final composition. The shaving compositions can be simple aqueous solutions or a self-foaming gel to be applied to the face just before shaving. They contain, in general, other cosmetic or dermatological ingredients chosen, for example, from beard-wetting agents, skin-conditioning agents, cleansing agents, foaming agents, emollients, hydrating agents, surfactants, thickeners or gelling agents, propellants, self-foaming agents, fragrances, colouring agents, antioxidants and preservatives. The water content is preferably 70 – 90% by weight and the surfactant is approximately 5 – 20% by weight.

Title: Topical and oral delivery of arginine to cause beneficial effects

US Patent: 6,207,713

Appl. No. 08/936,189

Date Granted: March 27, 2001

Inventor: Fossel; Eric T.

It is generally accepted that cold tissue of the hands, fingers, feet and toes as well as other cold tissue is caused by insufficient blood flow. It is suggested that the use of increased blood flow through relaxation of blood vessels, particularly small and very small vessels, may be of use in warming cold tissue.

The patent describes the use of orally administered L-arginine in conjunction with a topical preparation for producing enhanced blood flow thus causing beneficial effects such as warming cold tissue of the hands and feet, promoting hair growth on scalp tissue lacking sufficient hair,

promoting healing of superficial ulcers such as leg ulcers in persons with diabetes, and overcoming male erectile failure.

The amino acid L-arginine is an important biological precursor to the substance responsible for relaxation of blood vessels permitting enhancement of blood flow. Sodium chloride is included in the composition because its high ionic strength overcomes the resistance to transfer into the skin caused by the high charge density of L-arginine. It is claimed that when topically applied to cold tissue, warming begins within 10 to 45 minutes and is sustained for periods as long as 2 to 18 hours. When applied nightly to scalp tissue it causes substantial growth of hair on the scalp, causes the healing of superficial ulcers such as leg ulcers and overcomes impotence.

For topical application 12.5% L-arginine hydrochloride is incorporated in a readily absorbed w/o emulsion, which also contains 10% choline chloride, 5% magnesium chloride and 5% sodium chloride, all % are weight/volume. The L-arginine hydrochloride is to provide a precursor to the molecule, nitric oxide. L-arginine hydrochloride is the preferred active agent because it is the agent in nature itself, it is non-toxic, is highly soluble and it is inexpensive. Other precursors or donors of nitric oxide that may be used include arginine glutamate, arginine butyrate and esters of arginine such as arginine ethyl ester or arginine butyl ester.

Title: System and method of complimentary day/night children's skin cream compositions

US Patent: 8,894,978

Appl. No. 14/262,165

Date Granted: November 25, 2014

Inventor: Prendergast, W.S.

The patent describes a skin care system that includes day and night skin cream compositions comprising nutrients and antioxidants for use by children between six months and eighteen years of age. The day skin cream provides protection from UV radiation and the night cream contains elevated levels of nutrients and antioxidants. The day composition is applied topically each day to the face after tooth-brushing, and the night composition is applied topically to the face each night after tooth-brushing.

The day skin cream composition comprises 50-65% water, 20-40% skin conditioning agents, 5-10% sunscreen ingredients, and less than 0.5% antioxidant and nutrient-rich ingredients by weight. The night skin cream comprises 65-80% water, 10-20% skin conditioning agents, and 0.3 to 1.5% antioxidant and nutrient-rich ingredients and has a lower pH than the day cream.

Both compositions include deionised water, capric triglyceride, shea butter, sunflower seed oil, vegetable glycerin, borage seed oil, cetearyl alcohol and cetearyl glucoside, glyceryl stearate, xanthan gum, benzyl alcohol, fragrance, Vitamin E, aloe vera barbadensis leaf juice, and blueberry extract. The day composition also includes microfine zinc oxide and titanium dioxide and has an SPF of at least 20. The nighttime composition also includes stearic acid and extra antioxidants and may also include sweet almond oil, cucumber extract, acai berry extract and coffee bean extract.

The applicant claims that this skin care regimen for children protects, hydrates, and helps prevent skin damage and premature aging and, because application is incorporated into existing morning/bedtime routines, the system becomes part of a child's way of life.

Title: Sunscreen compositions having synergistic combination of UV filters

US Patent: 8,691,192

Appl. No. **13/719,374**

Date Granted: **April 8, 2014**

Assignee: **L'Oreal (Paris, FR)**

The patent describes sunscreen compositions having a synergistic combination of ultraviolet light (UV) filtering agents that provide a high sun protection factor (SPF) without requiring high overall amounts of UV filtering agents. The patent claims various combinations of UV filters, which have been summarised in the following table.

UV Filter	Technical or Trade Name	Minimum %	Maximum %	Suggested %
Butyl methoxydibenzoylmethane	Avobenzone	2.00	5.00	5.00
Octocrylene	Octocrylene	2.00	7.00	5.00
Bis-ethylhexyloxyphenol methoxyphenyl triazine	Tinosorb S	0.10	2.00	2.00
Ethylhexyl triazone	Uvinul T150	0.10	3.00	2.00
Drometrizole trisiloxane	Mexoryl XL	0.10	3.00	3.00
Octisalate		<0.00	5.00	

All the % are by weight relative to the total weight of the sunscreen composition and other combinations are suggested within the patent. It is claimed that such combinations deliver SPF values 8x the total % of the UV filters, thus the %age suggested may deliver SPF136. The patent claims ratios of the various UV filters shown in the table with reference the value for Avobenzone to deliver SPF values from 15 to 137.

The patent also describes delivery systems based on both w/o and o/w emulsions with up to 30% oil content and also containing a film former to impart water-resistance. As with most such patents it lists almost all known oils, esters and emulsifiers but preferred emulsifiers are sucrose monostearate, sucrose distearate, sucrose tristearate and mixtures thereof and the distearate of methyl glucose and of polyglycerol-3. Preferred esters are glycerol fatty esters from stearates and palmitates.

Rheology modifiers are also extensively listed but xanthan gum and ammonium

acryloyldimethyltaurate/steareth-25 methacrylate crosspolymer are shown as preferred. The final composition may also contain additional UV filters and again there is an extensive list by both INCI name and various trade names to include surface treated microfine oxides. A formula for a clear spray-on sunscreen with SPF 137 (in-vitro) is shown as follows:-

Octocrylene 5.3%

Avobenzone 4.92%

Tinsorb S 1.69%

Uvinul T150 2.33%

Mexoryl XL 2.68%

Polysorbate 20 5.50%

Propylene glycol 5%

Isopropyl lauroyl sarcosinate 31.75%

Acrylate/octylacrylamide copolymer 2.5%

Ethanol Qs 100%

Title: Composite powder for simultaneously blocking infrared and ultraviolet rays and cosmetics composition using the same

US Patent: 8,647,609

Appl. No. 13/257,873

Date Granted: February 11, 2014

Assignee: Coreana Cosmetics Co

While it is well known that skin damage can be caused by ultra-violet radiation the applicants suggest that the infrared rays, which occupy 54% of solar energy, accelerate the skin aging by a thermal effect. The patent describes a composite powder comprising infrared-ray blocking particles coated with ultraviolet-ray blocking particles. The composite powder described simultaneously blocks both infrared (IR) and ultraviolet rays (UV). If the composite powder is applied to cosmetics, it is possible to minimise wrinkles, irregular pigmentation, loss of skin elasticity, disturbance of skin barrier function and skin damage such as cancer and skin aging. It is also claimed that since the small-sized UV blocking particles are coated onto and firmly fixed into the surface of the IR blocking particles, it is possible to prevent aggregation of the UV blocking particles.

The diameter of the IR blocking particle is within the range of 0.38-1 microns and the diameter of the UV blocking particle is within the range of 8-150 nanometers The IR blocking particle is formed of titanium dioxide (TiO_2) or zinc oxide (ZnO), and the UV blocking particle is formed of a material or a mixture of materials selected from a group including TiO_2, ZnO, cerium dioxide (CeO_2), and zirconium dioxide (ZrO_2). The IR blocking particle blocks radiation having the wavelength range of 760 nm-3000 nm; and the UV blocking particle blocks UV radiation having the wavelength range of 290 nm-400 nm. The IR blocking particle of the composite powder is about 5% to about 15% by weight of the cosmetics composition and the ration of these to UV blocking particles should be approximately 70:30.

The blocking particles are surface-treated with an organic or inorganic surface treating agent containing a hydroxyl group (--OH) or hydrogen group (--H). Examples are dimethiconol, triethoxycaprylylsilane, methicone/dimethicone copolymer and methicone. The particles may also be surface treated with inorganic material or organic material to improve the surface quality of the powder; for example using alumina, silica or aluminum hydroxide. Surface treating the particles before forming the composite powder improves the uniformity of the deposition of UV blocking particles onto the IR blocking particles.

The composite powder may be incorporated into any suitable product for topical application and in-vitro and in-vivo testing shows that SPF and UVA protection is boosted by about 20% compared to similar compositions containing a mixture of the two particles where one has not been deposited on the surface of the other.

All dermatological treatments should begin with skin cleansing. However, the wrong type of skin cleansing can jeopardise the success of a treatment. In particular, cleansing that is too vigorous, which exposes the skin to extremes of pH, or which removes skin lipids can cause skin damage.

The patent describes pre-treating the skin with a composition that comprises a mild surfactant mixture, an anti-microbial agent, a buffer that adjusts the skin pH to slightly acidic and an agent that forms a protective layer on the skin. This basic treatment combines mild cleansing and sanitising, restoring lipids, and provides a protective coating to the skin. Basic treatment may be followed by appropriate dermatological therapy and suitable compositions are described.

The mild surfactant mixture consists of disodium cocoamphodiacetate, cocamidopropyl hydroxysultaine, disodium laureth sulfosuccinate, and decyl glucoside. The preferred mixture of lipid-regenerating agents comprises coceth-6 with glyceryl oleate and polyquaternium-2. Particularly preferred as an anti-microbial agent is disodium undecylenamido MEA-sulfosuccinate.

The patent claims very wide margins for the % level of these and other ingredients but the preferred maximum and minimums are:-

Ingredient	Minimum %	Maximum %
Disodium undecylenamido MEA-sulfosuccinate	2.0	4.0
Coceth-6	2.0	7.0
Glyceryl oleate	0.3	2.5
Polyquaternium-2	0.4	1.3
Citric acid	0.2	2.0
Sodium citrate	0.2	2.0
Disodium cocoamphodiacetate	4.0	8.0
Cocamidopropyl hydroxysultaine	0.4	6.0
Disodium laureth sulfosuccinate	1.0	3.0
Decyl glucoside	4.0	8.0
PEG-20	1.0	6.0
Glycerin	10.0	30.0
PEG-120 methyl glucose dioleate	1.0	5.0
Laureth-9	4.0	6.0

The citric acid/sodium citrate buffer system may be replaced with lactic acid/sodium lactate.

Various formulations are shown for the treatment of dry or sensitive skin and to soothe skin, achieved by varying the levels of the basic ingredients.

Title: Foamable composition essentially free of pharmaceutically active ingredients for the treatment of human skin

US Patent: 8,986,658

Appl. No. 14/142,039

Date Granted: March 24, 2015

Assignee: Intendis GmbH

The patent describes a composition which is essentially free of pharmaceutically active ingredients for the treatment of human skin, especially the treatment of rosacea, acne, atopic and contact dermatitis, perioral dermatitis or psoriasis, for prophylactic and/or cosmetic purposes.

The composition contains one or more emollients, stabilisers, preservatives, emulsifiers, foam stabilisers, moisturisers and propellants. The preferred ingredients with their preferred range shown in % by weight are as follows:-

Ingredient	Min %	Max %	Function
Caprylic/capric triglyceride	10.00	12.00	emollient
Cetearyl alcohol	1.20	1.00	stabiliser
Glyceryl stearate	0.44	0.55	stabiliser
Benzoic acid	0.10	0.12	preservative
PEG-40 stearate	3.00	2.60	emulsifier
Methylcellulose	0.08	0.18	foam stabiliser
Xanthan gum	1.00	0.95	foam stabiliser
Polysorbate 80	1.00	0.95	emulsifier
Dimethyl isosorbide	5.35	6.00	moisturiser
Propylene glycol	12.00	12.25	moisturiser
Sodium hydroxide to pH 4.5	qs	qs	pH adjuster
Purified water to 100%	qs	qs	
Propellant blend	8.00	9.00	

The propellant blend appears to be any combination of currently used aerosol propellants and the composition is packed in an aerosol container with a foaming nozzle.

In clinical tests it was shown that the compositions have beneficial properties, especially in the treatment of rosacea. It was noted that this therapeutic effect was achieved without application of any pharmaceutically active ingredients.

Title: Multifunctional topical formulation for the treatment of acne vulgaris and other skin conditions

US Patent: 8,932,650

Appl. No. 13/762,829

Date Granted: January 13, 2015

Assignee: Kantian Skincare LLC

The patent describes a two-part aqueous composition for treating skin ailments. It comprises an acidic lotion containing salicylic acid and an alpha-hydroxy acid, and a second lotion having an alkaline nitrite salt. Upon combination of both phases, either initially ex-vivo or on the skin after sequential application of the two parts, it creates a mixture of at least three beneficial acidic substances. These compositions are a complex of various powerful antimicrobial and keratolytic agents, where several of the acidic substances serve more than one of these functions, claim the applicants.

The alpha-hydroxy acid is preferably either glycolic acid, lactic acid, malic acid or mandelic acid or a combination thereof. The alkaline nitrite salt is preferably sodium nitrite present at about 0.75 – 1.5%. The two parts may either be mixed with one another then applied to an affected portion of a patient's skin or, alternatively, may be sequentially applied to the affected portion of the patient's skin, preferably within 15 minutes of one another.

The areas in which this technology can find application includes the broad range of topical skin infections and disinfection, as well as conditions which involve both pathogenic microorganisms and physiologic dysfunction, and often a combination of both such as acne vulgaris

The most common material used for the treatment of acne is salicylic acid, which has keratolytic activity. Salicylic acid can "dissolve" skin tissue overlying the papules, pustules, etc., associated with the acne condition. In so doing, it promotes drainage of the blocked sebaceous glands and reduces the resulting inflammatory potential. Associated with the keratolytic activity of salicylic acid is a recognized skin irritancy and the FDA only allows salicylic acid to be used in acne medications at levels no greater than 2.0%.

Alpha-hydroxy acids are also keratolytic. The most commonly used are glycolic acid and lactic acid. Because of concerns over the side effects of certain common alpha-hydroxy acids, in 1997 the FDA specified that glycolic and lactic concentrations in the product be 10% or less, its pH be 3.5 or higher, and it must have an effective sunscreen in the formulation or warn people to use sunscreen products. Mandelic acid, is a known keratolytic acid with powerful germicidal activity and it appears to be less irritant than glycolic or lactic acid. It is particularly effective against P. acnes and is included in the acidic composition at 0.75% to about 2.0%.

It is preferable to incorporate a thickening agent to one or both parts of the two-part system, to add "body" to the composition. When the compositions are brought together nitrous acid is formed, which exhibits a great germicidal rapidity against a broad spectrum of bacteria and fungi.

Three patents relating to feet and toenails; two to treat nail disorders and one to decorate toe and fingernails.

Title: Method and apparatus for improving the appearance of nails affected by onychomycosis through the topical application of an aqueous solution containing boric acid and camphor or other terpenes

US Patent: 8,979,820

Appl. No. 13/546,984

Date Granted: March 17, 2015

Assignee: Bailey; Cynthia S.

The patent describes a method of treating onychomycosis and improving nail appearance for persons suffering onychomycosis. Onychomycosis is a fungal infection caused by tinea unguium fungi of the fingernails or toenails. In the early stages of infection the area around the base and the sides of the nail may become red and irritated. If the fungus is allowed to spread deeper into the bed of the nail, it may cause discomfort, itching, and pain around the cuticles, and even bleeding and detachment of the cuticles. The nail may discolour to yellow-green or dark yellow-brown and white spots occasionally appear in the nail.

Eventually, the nail thickens and develops abnormal grooves, lines, and broken and crumbling edges. Saprophytic moulds, yeast and bacteria may co-infect or colonise the infected nail. This explains

current treatment failures as these different classes of microorganisms require differing antimicrobial agents to eradicate them.

Nails are composed of hydrophobic lipid layers alternating with hydrophilic keratin layers. The difficulty with topical treatment of onychomycosis is the resistance of the nail plate and the nail unit structure to absorb topically applied active ingredients because of these two structural nail layers.

The inventor has found a way to ensure penetration of the nail plate by creating a synergistic composition including boric acid and camphor or other terpenes. This combines an antimicrobial hydrophobic and a hydrophilic active together in an aqueous solution that is readily taken up into the layered nail plate structure. Both compounds have proven efficacy against a broad range of pertinent microorganisms.

Boric acid, which is hydrophilic, is carried into the nail plate as the plate absorbs water. Once in the nail structure, it exerts an antimicrobial effect on the infecting microorganisms. Camphor and other terpenes are lipophilic and proven skin penetration enhancers and antimicrobial agents. They readily penetrate the lipid layers of keratin skin-related structures such as the skin under and around the nail unit and exert their antimicrobial effects.

Title: Base material for pharmaceutical and/or cosmetic cream (herbal composition for itchy or infected skin)

US Patent: 8,703,212

Appl. No. 11/517,986

Date Granted: April 22, 2014

Assignee: Viraj Shah, Varion Ltd.

Described is a cream for use in the treatment of fungal infections of the skin and nails wherein the itchy or infected skin disorder is caused by seborrheic dermatitis, achrodermatits, eczema, athlete's foot, psoriasis, lichen planus, lichen simplex, lichensclerosus, impetigo, acne vulgaris, or infection caused by Propioni bacterium acnes.

The patent describes a novel base material for manufacturing a cream for the skin comprising cooling and soothing agents. A representative formula is shown as ghee 12%, coconut oil (Cocos nucifera) 12%, water 65% and a mixture of cetyl alcohol, glyceryl stearate and PEG 100 stearate with vegetable glycerol in ratio of 4:5:1 respectively, totalling 10%.

The mix also contains freeze-dried aqueous extracts of Cassia tora 0.005%, Centratherum anthelminticum 0.005%, Melia azadirachta 0.005%, neem kernel oil 0.48% and rose oil 0.02%. It may also contain vitamin E and jasmine oil.

The patent contains details of manufacture and extensive testing against skin and nail disorders. Ghee is clarified butter and testing shows that the optimum level to provide a protective effect is 12% by weight based on the total weight of the composition.

Title: Multi-layered colour-enhancing nail applique

US Patent: 8,905,044

Appl. No. 12/773,135

Date Granted: December 9, 2014

Assignee: Park; Fa Young

Nail polish or enamel comes in various colours, textures and styles but one problem associated with many of the common nail polishes is, that once applied to a toe or fingernail, the natural colour of the nail bed shows through. As a result, the colour and lustre of the nail polish is diminished. The user may need to apply several layers to overcome this problem and needs to allow each layer to dry before the next application.

The patent describes a dry nail polish applique in several layers to be applied to a toe or fingernail whereby the bottom layer hides the colour of the natural nail. A top layer of a different colour is applied on top of this so that the colour of the top layer is not affected by the natural nail colour. The top layer could be of a translucent quality such that the top layer and bottom layer visually combine to produce a unique appearance.

In one example the bottom layer is white and this act as an opaque layer ready for application of the coloured top coat. In another example the bottom layer is a coating having a metallic sheen and a coloured, translucent layer is applied on top of this. The metallic layer obscures the colour of the underlying nail, but is visible through the translucent layer and the combined effect produces a unique bright and textured look.

The various coatings of the product are applied via a technique referred to as "slot curtain die coating." The first substance applied to the substrate is an adhesive material used to adhere the applique to the finger or toenail. Nail enamel layers are applied to the top side of the substrate. After each layer is applied the enamel is partially dried by heaters or blowers. After all layers are applied to the substrate, the substrate is cut into nail-shaped appliques, which are then sealed in an airtight package to prevent complete drying. An applique will completely dry on the nail of a wearer considerably faster than drying times required for traditional nail polish applied with a brush. After application the applique is cut and formed to totally fit the nail.

Three patents applicable to perfumery are described. The first is about a material used to enhance the performance and stability of aromatic materials and particularly essential oils. The next describes a way of protecting citral notes from degradation and the third is about a new organic aromatic material that also has skin soothing properties.

Title: Method of enhancing fragrance by adding optically active muscone composition

US Patent: 8,093,203

Appl. No. 11/719,109

Date Granted: January 10, 2012

Assignee: Takasago Int. Corp.

The stated objective of the patent is the development of a new fragrance material that will be a fragrance enhancer for fragrances or cosmetics. When added to fragrances or cosmetics it should improve their fixative property and express a high performance and excellent musky aromatic quality.

Muscone is 3-methylcyclopentadecanone and it may be found in nature or chemically synthesized as a racemic mixture of the l-form and d-form, which can then be separated by optical resolution to provide (-)-(R)-form muscone and (+)-(S)-form muscone. The (R)-form has a strong musky odour with a diffusiveness threshold of 3 ppm, while the (S)-form has a poor, weak musky odour having a diffusiveness threshold of 10 ppm, thus the (R)-form is about 3 times stronger than the (S)-form.

A fragrance composition is prepared using, as the active ingredient, a mixture of (R)-form of optically active muscone with (S)-form of optically active muscone with the mixing ratio thereof within the range of from 90:10 to 95:5 by weight or a ratio of 75:25 to 80:20. The mixture can be used as a fragrance enhancer by blending it with a fragrance composition. The quantity added varies depending on the kinds of fragrance and its purpose but, in general, a blending amount is preferably from 0.01 to 1% by weight, based on the total weight of the fragrance composition.

When the mixture of optically active muscone is added, for example, to bergamot oil, galbanum oil, lemon oil, geranium oil, lavender oil, mandarin oil or other natural essential oils, a novel fragrance composition is obtained in which the odour and aromatic quality originally possessed by the essential oil is improved in terms of mildness, richness, freshness, diffusivity and lasting ability.

Title: Degradation inhibitor for flavour or aroma

US Patent: 9,028,886

Appl. No. 12/668,943

Date Granted: May 12, 2015

Assignee: Ogawa & Co., Ltd.

The flavours and fragrance components in foods, beverages and cosmetics are generally rendered unstable by the effects of oxygen, light and heat. The result is loss of the original flavour or fragrance or the generation of off-flavours or off-odours during various stages of production, distribution and storage. Citral has a lemon-like fragrance and flavour and is an important component used to impart a fresh, citrus sensation to products such as foods, beverages and cosmetics. Under acidic conditions, citral is known to undergo reactions such as cyclization, oxidation, hydration and isomerization, producing various components with unwanted flavour or odour.

The patent describes a deterioration inhibitor obtained by treatment of a tea extract with an oxidizing enzyme and then inactivating the enzyme. A particularly notable effect is exhibited against production of p-cresol and p-methylacetophenone which are the result of deterioration of citral so it is suitable for foods, beverages and cosmetics with citral-containing citrus-like flavours and fragrances.

The tea extract component is obtained from the leaves, stems or buds of Camellia sinensis with water, a polar organic solvent or a mixture thereof. A 95% ethanol solution is preferred and generally 2-200 parts by weight of solvent will be used for 1 part by weight of the starting material. The preferred oxidizing enzyme is polyphenol oxidase and 0.01-0.5 g is used with 100 g of tea extract solids and the amount of enzyme is calculated in terms of the effective amount of enzyme protein. After treatment residual enzyme is inactivated by heating to reflux for at least 30 minutes in a 50% or more ethanol aqueous solution. The solution is then purified by treatment with an active carbon, an alumina, a silica gel, a porous styrene-divinylbenzene copolymer, a methacrylic acid ester-based porous polymer resin or a gel-type synthetic adsorbent.

The final material is added to flavours and fragrances at 0.1 – 100 ppm and for increased inhibiting power it may be combined with commonly used antioxidants such as L-ascorbic acid, enzyme treated rutin or extracts of pagoda tree, grape seeds, rosemary leaves or green tea and the like, and in order to prevent coloration by reaction between metals and substrates a metal sequestering agent such as citric acid, gluconic acid, tartaric acid, phytic acid, pyrophosphoric acid or polyphosphoric acid may be added.

Title: Organic compounds

US Patent: 9,102,899

Appl. No. 11/720,996

Date Granted: August 11, 2015

Assignee: Givaudan SA

In the fragrance industry there is a constant demand for new compounds that enhance or improve on odour notes, or impart new odour notes, claim the applicants. The inventors assert that it was found that certain 2-phenyl-2-alkene nitriles are not only very suitable as fragrance ingredients because of their very pleasant floral, fresh, rosacetol-like odour notes but also because of their very low odour threshold, which is about 7 to 9 times lower in comparison to the saturated compounds.

The patent lists a number of possible compounds but most preferred is 3-methyl-2-phenyl-but-2-ene nitrile because of its odour note, which is very close to that of rosacetol. The compounds named may be used alone or in combination with an extensive range of natural and synthetic molecules such as essential oils, alcohols, aldehydes and ketones, ethers and acetals, esters and lactones, macrocycles and heterocycles. The mixture may then include carrier materials and other auxiliary agents commonly used in the perfumery.

The named nitriles may be used in a broad range of fragrance applications such as perfumes, household products, laundry products, body care products and cosmetics. The compounds can be employed in widely varying amounts, depending upon the specific application and on the nature and quantity of other aromatic ingredients. The proportion is typically from 0.001 to 5 weight percent of the application. In is suggested that 0.001 – 0.05% be used in a fabric softener and from 0.1 to 2% by weight in fine perfumery.

The inventors also found that 3-methyl-2-phenyl-but-2-ene nitrile has the ability to inhibit or at least diminish the formation of prostaglandins in the skin, which makes it potentially applicable for skin soothing, making it particularly suitable for body care products and cosmetics, such as ointments, deodorants, and sun lotions, which are directly applied to the skin.

Title: Deodorant with improved endurance and stability

US Patent: 9,302,127

Appl. No. 13/788,554

Date Granted: April 5, 2016

Assignee: Knowlton Development Corp. Inc

The patent describes an improved deodorant formulation claiming good efficacy and excellent stability. The deodorant comprises about 30% by weight propanediol combined with about 2.5% zinc ricinoleate, about 0.1 % grapefruit seed extract and about 0.1% of sodium bicarbonate as the principal deodorising actives.

The applicants claim that consumers are becoming ever more conscious of the ingredients in their personal care products and there is increasing demand for products which have been formulated with natural ingredients that are not synthetically derived, and which can be formulated with minimal environmental impact. Many consumers are also cautious of ingredients used in deodorants such as triclosan, or ingredients that are petroleum-derived, such as propylene glycol. It is claimed that a solid stick deodorant formulation is required that preferably contains all natural or naturally sourced ingredients, which shows efficacy for a longer time following application, and is also stable for a longer time once formed into a deodorant stick product.

The preferred form for the final composition is as a gelled stick. An example formula given in the claims section of the patent is as follows:-

Ingredient	Approx. % w/w
Propanediol	30.00
Zinc ricinoleate	2.50
Grapefruit seed extract	0.10
Sodium bicarbonate	0.10
Glycerin	30.00
Sodium stearate	8.00
Polyglyceryl-3-caprate	0.50
Sucrose cocoate	0.90
Silica	0.90
Allantoin	0.20
Corn starch	0.90
Fragrance	qs
Aqua/water	To 100%

Although the ingredients and quantities given in the claims appear quite specific many alternative materials are mentioned in the text and quantitative limits are considerably widened. It is claimed that this combination of deodorising active ingredients results in a stable formulation with strong efficacy, which lasts at least 24 hours.

Title: Transparent antiperspirant gels

US Patent: 9,320,922

Appl. No. 12/823,272

Date Granted: April 26, 2016

Assignee: Henkel AG & Co.

Transparent gels in the form of water-in-oil (w/o) emulsions are very popular and frequently contain cyclomethicones, which are relatively volatile oil components. They produce a fresh and care-providing feel when applied onto the skin and find particular use in antiperspirants because they help solve the problem of clothing stains. However, for various reasons, current trends are to replace cyclomethicones with alternative oils and esters.

The patent describes transparent water-in-oil (w/o) antiperspirant compositions containing a balanced mixture of selected oil components and emulsifiers. The oil phase is preferably 14 – 16% of the total composition and can contain a combination of at least one symmetrical, asymmetrical, or cyclic ester of carbonic acid with linear or branched C6 to C22 alkanols, and at least one addition product of 1 to 14 propylene oxide units with univalent or polyvalent C3-16 alkanols. It is claimed that these oils offer a pleasant skin feel similar to that of cyclomethicone and transparent w/o emulsions can be manufactured because of their refractive indices.

The preferred esters of carbonic acid are di-n-octyl carbonate and di-2-ethylhexyl carbonate and the preferred addition product of propylene oxide is PPG-3 myristyl ether. The water content is approximately 15 -20% by weight based on the total weight of the composition and the aqueous phase, which includes all water-soluble components including the antiperspirant active, represents 81 to 84% of the composition. Particularly preferred antiperspirant active substances are selected from aluminium-zirconium glycol complexes such as aluminium-zirconium tetrachlorohydrex glycine and represent 10- 20% of the total composition.

One or more polyols are required to improve skin feel and make it possible to match the refractive indices of the oil and aqueous phases. Particularly preferred polyol mixtures contain 1,2-propylene glycol and dipropylene glycol at a weight ratio from 4:1 to 2:1. It is claimed that these mixtures exhibit particularly balanced properties with regard to transparency, active-substance release, skin feel, and skin compatibility. A silicone-based w/o emulsifier system is required and cetyl PEG/PPG-10/1 dimethicone in association with steareth-100 is selected from an extensive list. In addition the composition includes about 5% ethanol to aid transparency.

An illustrative formula is given as:-

Ingredients % wt

Diethylhexyl carbonate 12.0

Cetyl PEG/PPG-10/1 dimethicone 2.0

PPG-3 myristyl ether 2.0

Ethanol (96%) 5.0

Perfume oil 0.6

Aluminium-zirconium tetrachlorohydrex glycine21.0

1,2-Propylene glycol 24.4

Dipropylene glycol 13.4

Steareth-100 2.0

Water 17.6

Title: Deodorant formulation

US Patent: 9,314,412

Appl. No. 13/803,387

Date Granted: April 19, 2016

Inventors: Phinney; Robin, Phinney; Jonathon

Certain organic acids, such as 3-methyl-2-hexanoicacid, are primarily responsible for disagreeable body odours generally associated with perspiration and produced by microorganisms. If the acids can be neutralised by a suitable base the odour should be eliminated and magnesium hydroxide is claimed to be suitable to provide 16 – 20 hour protection. It has a pH of 9 – 10.5 so zinc oxide is added to reduce the pH to between 9 and 10.

The inventors claim that it has surprisingly been found that magnesium oxide and zinc oxide together have particular efficacy in destroying the microorganisms causing the odour. It is believed that the

previously recognised synergy between the zinc and magnesium compounds has been further augmented with the disinfection capacity of potassium chloride and/or potassium sulphate.

The patent describes deodorant compositions that include magnesium oxide, zinc oxide and, as a disinfecting agent, potassium chloride and/or potassium sulphate. The combination is claimed to provide long lasting odour protection by destroying odour causing microorganisms. The formulations all contain natural ingredients and do not include petroleum based or related synthetic compounds.

The preferred composition is in solid stick form comprising by weight 55% propylene glycol; 20% water; 12% glycerine; 8% sodium stearate; 2.5% magnesium hydroxide; 1.5% zinc hydroxide and 1% potassium chloride. This formula is at variance to some of the claims, which include the addition of a fragrance, a thickening agent and a small selection of oils and waxes and other cosmetically acceptable additives. Also, although the % figures are given as shown, they are quoted as ranges in the main text and it is stated the disinfecting and deodorising formulations can be used as precursory mixture for other formulations and uses.

Title: Active ingredient combinations of magnolia bark extract and hyaluronic acid and the cosmetic and/or dermatological use thereof

US Patent: 9,402,801

Appl. No. 14/411,688

Date Granted: August 2, 2016

Assignee: Beiersdorf AG

The patent describes an active ingredient combinations of magnolia bark extract and hyaluronic acid for the cosmetic or dermatological treatment of cellulite and the appearance form of skin aging. The composition also contains anise fruit extract obtained by enzymatic hydrolysis of anise fruits solubilised in water.

The applicants claim that the visible appearance of cellulite is based on an increase in fat pads in the subcutaneous fatty tissue, a weakening of the connective tissue and also a reduction in the flow ratios in the blood stream and lymphatic tracts. The cause is therefore in part a position-dependent weakening of the connective tissue with the simultaneous appearance of enlarged fatty cell chambers as a result of excess weight, an unbalanced diet and lack of exercise. The formation of cellulite can also be attributed to increased permeability of the capillary walls, which allows water to penetrate into the connective tissue. In addition, there may be a localised testosterone deficiency at the areas of skin affected and cellulite is a phenomenon that is almost never observed in men.

It was found that active ingredient combinations of magnolia bark extract and hyaluronic acid led to a considerable improvement in the appearance of the skin. Skin moisture increased and the lipid synthesis was stimulated leading to an improvement in skin volume. Wrinkle depth and wrinkle number of intrinsically or extrinsically aged skin was reduced and the appearance of aging skin improved. It was also found that the elasticity of the skin, and therefore cellulite, and the appearance of so-called "orange peel skin", was improved.

The magnolia bark extract is preferably from Magnolia grandiflora, and in particular Magnolia officinalis. It yields two active principals, magnolol and honokiol and the extract preferably constitutes 0.1-2.0% by weight of the total composition. The sodium salt of hyaluronic acid is preferred at 0.01 to 2% by weight. The Pimpinella anisum (Anise) fruit extract is preferably present at 0.5 to 7% by weight.

The final composition is an emulsion that also contains a high level of antioxidant and a sunscreen in addition to consistency regulators, fillers, perfume, dyes, emulsifiers and additional active ingredients such as vitamins or proteins and antimicrobial, proteolytic or keratolytic substances.

Title: Antibacterial hair removal composition

US Patent: 8,968,713

Appl. No. 14/474,102

Date Granted: March 3, 2015

Inventors: Fusco; Normajean

The patent describes an antibacterial, non-aqueous liquid hair removing composition that includes 6.5% mineral oil and an effective antibacterial amount of an antibacterial agent, e.g., triclosan and/or benzethonium chloride. The composition further includes 14% soybean oil, 7.5% gum rosin, 71% rosin esters and 0.2% titanium dioxide. All figures are by weight and approximate. It may also include fragrances, thyme oil and phenoxyethanol.

The hair removal composition is applied to a person's skin, and after a sufficient amount time, removed with a latex free, non-woven strip material with the hair entrapped therein and any remaining composition is removed with a safflower/sunflower erasing lotion.

Triclosan at about 0.3% by weight and 0.2% of benzethonium chloride is included. According to the inventors, unlike other products used for hair removal, this composition has been clinically tested and shows a 99.97% reduction of bacteria. It removes hair gently and under lower temperatures than required for wax and wax like products and remains bacteria free, stays liquid at body surface temperatures and does not cause lifting of skin tissue when removed. Because of its anhydrous nature, when applied to the body, the composition bonds to the sebaceous oil secreted but not to the person's skin. The hair removal composition of this invention is completely dissolved with a safflower/sunflower erasing lotion causing no ill effects to the skin or clothing.

Author’s Note: The use of triclosan and benzethonium chloride in cosmetics is strictly controlled and careful study of the regulations should be undertaken if intending to use these materials.

Title: Isotropic cleansing composition with particulate optical modifiers

US Patent: 7,202,199

Appl. No. 10/814,880

Date Granted: April 10, 2007

Assignee: Unilever Home & Personal Care USA

Described is an aqueous isotropic liquid cleansing and moisturising composition comprising a surfactant; a thickening agent, and a solid particulate optical modifier that enhances the appearance of the skin after wash off.

In the background to the patent the applicants claim that consumers are looking for multiple functionalities in their cleansing products, such as cleansers that simultaneously cleanse and moisturise. In this case, products that cleanse the skin will also make it shine, sparkle or glow by leaving behind solid particles that affect the interaction of light with the skin. Optionally, these cleansers could also contain moisturisers and emollients to condition the skin and one or more active agents that can be used to deliver a benefit to the skin. They discovered that by incorporating certain solid particles and a specific cationic polymer in a cleanser formulation, the visual appearance of the

skin can be modified after wash off without the need for a complex delivery system employing specific oil droplets.

The cleanser comprises a mixture of surfactants, a thickening agent, about 0.2% to about 1% by weight of a solid particulate optical modifier of from about 50 to about 150 microns in average diameter, about 0.1% to 10% of a cationic polymer and less than 0.01% of a hydrophobic emollient. A preferred anionic surfactant is either ammonium or sodium laureth sulfate at between 7% and 15%. An amphoteric surfactant is included at up to 5% by weight and cocamidopropyl betaine and a non-ionic surfactant like cocamide MEA may also be included.

The cleansing composition possesses isotropic micellar phase microstructure but also requires a structuring agent such as laponite clay, a polyacrylate or an acrylate polymer to suspend the particulates and to further thicken the product. The favoured cationic polymer is guar hydroxypropyltrimonium chloride and other ingredients to enhance the aesthetic, functional properties and shelf-life of the composition may be included. The particulates are mica coated with titanium dioxide, silica or iron oxide.

This is a particularly long and detailed patent requiring careful study by those interested.

This month's patents abstracts describe a mascara claiming up to 5 day's longevity; a nail polish claiming to prevent onychomycosis and a transfer-resistant lipstick based on natural oils.

Title: Cosmetic composition including acid

US Patent: 9,320,700

Appl. No. 14/218,263

Date Granted: April 26, 2016

Assignee: L'OREAL (Paris, FR)

The patent describes a cosmetic composition claiming to enhance the appearance of eye lashes that comprises a latex film forming polymer, an acid, water and optionally a pigment, said composition having a pH of from about 6.5 to about 8.

The preferred latex is styrene/acrylates/ammonium methacrylate copolymer present at between 20 to 37.5% but most preferably 35+/-1% by weight and the preferred acid is citric acid at from about 0.5% to 0.9% but most preferably 0.825 +/- 0.025% by weight. Water is present at about 50% to 60%, with 52% being preferred and the balance is made up of suitable cosmetic pigments and additives to improve the shelf life, marketing attributes and aesthetics of the product.

The applicants claimed that mascaras are expected to have good wear and transfer resistance properties and typically comprise an emulsion of water and waxes to provide volume, length, and other properties to the eyelashes. They often also include one or more polymers such as silicone resins, polyacrylates and lattices to improve these properties but are frequently found to be difficult to spread and may provide an undesirable tacky feeling.

The stated objective of this patent is to provide mascara, which affords longer wear, a stable colour and no flaking for five days or more and is still comfortable to the consumer. The applicants found that the combination of a latex film forming polymer, a polycarboxylic acid and water, in the stated amounts, provides a very stable and comfortable long wear cosmetic composition even in the absence of fats and waxes. It is suggested that the acid forms a complex with the latex polymer through interactions between the polar groups of the acid with those of the anionic styrene acrylate copolymer.

The resulting network is more structured and firm, resulting in a thicker composition with enhanced adhesive properties, leading to longer durability.

Title: Cosmetic formulation

US Patent: 9,370,191

Appl. No. 13/959,704

Date Granted: June 21, 2016

Assignee: Kelly; Pardis

Described is an antimicrobial nail polish composition comprising a glycerin-based grapefruit seed extract; one or more film-forming components; one or more solvents; one or more plasticizers and one or more thixotropic agents, wherein the antimicrobial nail polish composition is adherent yet flexible, glossy, resists chipping and treats or retards onychomycosis. It may also include pigments.

Onychomycosis is a fungal disease of the nail and constitutes about half of all nail abnormalities. The condition may affect toenails or fingernails and affects about 6-10% of the adult population of the USA. Claimed is a nail polish formulation that provides a glossy, fashionable, attractive and durable nail polish while treating or retarding onychomycosis and imparting other antimicrobial or health benefits to the nails

The patent is of interest because of the wide range of materials listed to provide the various functions expected in a nail polish. Thus various film-forming components are named although preferred is a nitrocellulose/isopropanol mix. Many plasticisers are named but dioctyl terephthalate or triphenyl phosphate or a combination thereof is preferred at about 7% to 15% by weight. The preferred solvent system is about 15% to 35% ethyl acetate with about 20% to 30% N-butyl acetate or with 2% to 5% propylene glycol monomethyl ether acetate or with about 3% to 8% ethanol or isopropyl alcohol. All % quantities are by weight compared to the total weight of the composition.

A thixotropic agent is present in an amount effective to gel the composition to hold the pigments in suspension but it should flow when shaken or otherwise agitated. The favoured agent is stearalkonium hectorite and this is present in an amount of about 0.5 to 3.0%. The pigment quantity depends on the colour required but typically represents 1% to 2% of the total composition.

The grapefruit seed extract is present at 0.5% to 1% and in addition the nail polish formulation may further comprise brightening agents, UV-stabilizers, anti-oxidants, drying accelerators and one or more nail hardeners such as N,N' dimethylurea. A silicone agent such as polydimethicone to prevent chipping and marring and to impart additional gloss may also be included.

Title: Shiny, transfer resistant lipstick and method of making

US Patent: 9,138,388

Appl. No. 13/822,483

Date Granted: September 22, 2015

Assignee: Coty Inc.

The patent describes transfer resistant lipstick comprising one or more colorants, a coconut alkane mixture of linear paraffins and gelled Cocos nucifera (Coconut) seed oil. The gelling agents are a mixture of a styrene/butadiene copolymer, polyethylene, caprylyl glycol and a mixture of Acacia decurrens/jojoba/sunflower seed wax with polyglyceryl 3-ester. It also contains lauroyl lysine, mica

and pearls and a fragrance and other ingredients to improve the product shelf-life and consumer appeal.

The preferred alkanes are linear paraffins with an even number of carbon atoms and particularly preferred are the C12 and C14 paraffins, dodecane and tetradecane. These may be isolated from Cocos nucifera (Coconut) seed oil and are referred to as coconut alkanes throughout the patent. These are considered volatile and are suitable replacements for cyclomethicones. The composition also includes up to 30% by weight of at least one C14 to C24 linear paraffin, and up to 50% by weight of at least one non-volatile oil.

The pigments are any of those suitable for cosmetic compositions and include pearling agents, boron nitride, mica etc. and they may be surface treated with lecithin, amino acids, mineral oil, silicone oil or various other agents, either alone or in combination, which coat the powder surface and render the particles more lipophilic in nature.

The lipstick is prepared by combining one or more dry pigments with the volatile coconut alkanes to form a colorant paste; heating a coconut gel comprising Cocos nucifera (Coconut) seed oil, a styrene/butadiene copolymer and polyethylene to a temperature of about 850 to 900C; heating a mixture of volatile coconut alkanes that include at least one linear paraffin selected from C10 or C12 paraffins and mixtures thereof; adding the heated coconut gel to the heated paraffins; adding polyethylene, caprylyl glycol, and a mixture of Acacia decurrens/jojoba/sunflower seed wax and polyglyceryl 3-ester, adding the colorant paste and optionally adding fragrance and other additives. The mixture is stirred until homogenous and then poured into moulds.

Title: Perfume and cosmetic composition with anti-stress and relaxing effect

US Patent: 9,248,320

Appl. No. 13/257,186

Date Granted: February 2, 2016

Assignee: Amorepacific Corporation

According to the applicants, in industrialised societies filled with conflict and competition people get a lot of psychological stress while they try to adapt to their environment. Moderate stress can be beneficial since it gives an impetus to life and promotes efficiency and productivity. However, excessive stress is an important health risk factor and to recognise and manage stress well is essential in maintaining and promoting health.

It is known that essential oils used in aromatherapy may relieve stress and, according to a subjective evaluation study, inhalation of aroma oils results in reduced stress in working environments. The patent describes a perfume composition including grapefruit oil and bergamot oil and one or more oils selected from a group consisting of pine oil, lemon oil, cypress oil, rose oil and armoise oil that may be released in the working environment to help relieve stress.

Grapefruit oil has a fresh fragrance and is known to be effective in promoting blood circulation and making people feel pleasant by improving confidence and relieving stress. It is a citrus oil containing about 90% limonene and small amounts of terpene and decanol, cadinene, neral and citronellal. Bergamot oil is obtained from the outer skin of the bergamot fruit. It contains 40% or more limonene and linalyl acetate and also contains linalool and bergamotene as a characteristic ingredient. Bergamot oil is said to stabilise the mind, aid respiration and relax tense muscles.

Pine oil may be extracted through steam distillation of pine needles. Lemon oil may be extracted from the peel of lemon fruit and cypress oil refers to an essential oil of the cypress tree of the family

Cupressaceae and is is known to have relaxing and brain refreshing effects. Rose essential oil is effective in relaxing tense mind and body and relieving fatigue and stress and the armoise oil is known to be effective in treating relaxing the nerves. An example formula used to prove the stress-relieving attributes of the composition is given as Grapefruit oil 50%, Bergamot oil 20%, Pine oil 10%, Lemon oil 5%, Cypress oil 5%, Rose oil 5%, Armoise oil 5%, all % by weight.

Title: Benefit agent delivery particles comprising dextran

US Patent: 9,351,910

Appl. No. 14/239,558

Date Granted: May 31, 2016

Assignee: Conopco, Inc.

The patent describes a delivery system comprising a perfume encapsulated in dextran and may further include a non-polysaccharide polymer. The encapsulation process uses emulsion polymerisation to form core-shell particles and a further polymer layer is formed on the outer surface of the core in the presence of the delivery aid.

The encapsulated perfume is designed either for laundry treatment with the addition of a suitable enzyme, or for hair treatment compositions, in which case a non-ionic or anionic surfactant is included. Preferably, for hair and/or skin treatment compositions the surfactant comprises at least 3% wt on total composition of an alkyl ether sulphate.

While it is essential for the present invention that the delivery aid comprises a dextran, additional delivery aids may be present at the surface of the particle. Particularly preferred are chitosan, cellulose derivatives, locust bean gum, xyloglucan and guar gum. Alternatively polyester polymers may be included.

In a preferred embodiment the emulsion polymerisation step is a so-called "mini-emulsion" polymerisation, performed with a dispersed phase droplet size of below one micron. Sufficiently fine emulsions can be obtained via high shear dynamic or static mixers and the resulting mini-emulsion products have excellent suspending properties. Many emulsifying agents are known for use in emulsion polymerisation and the emulsifying agent can be selected to ensure that the finished particle is compatible with the environment in which it will be used. Preferred emulsifying agents are fatty alcohol exthoylates, salts of ether sulphates, alkyl and alkaryl sulphonates and sulphates and cationic quaternary salts.

If a non-ionic surfactant is used it is preferred that it is hydrophilic, so as to promote the formation of a stable mini-emulsion. The alcohol ethoxylates with more than ten moles of ethoxylation yield good results. It is noted that as the level of surfactant increases the particle size becomes smaller, which is advantageous. The particles are typically included in compositions at levels of preferably from 0.01% to 3% by weight of the total composition. The patent is particularly long and very detailed and anyone interested is urged to refer to the entire document.

Title: Cosmetic composition with watertight fragrance

US Patent: 9,265,711

Appl. No. 13/796,659

Date Granted: February 23, 2016

Assignee: Coty B.V.

The patent describes a cosmetic composition that enables the perfume component resist wash-off by water and sweat and to remain fixed on the skin for a long time. The cosmetic composition comprises fragrance and a fragrance-fixing complex consisting of a hydrophobic, alcohol-soluble, carboxylated acrylates/octylacrylamide copolymer and hydrolyzed jojoba ester.

Throughout the patent very wide ranges of use are given in % by weight but for brevity only the most preferred ranges will be shown here. The fragrances content is between 1 to 5% by weight. The copolymer between 0.1-1.0% and the jojoba ester is present in a range of 0.1-1% by weight. The jojoba ester and the copolymer may constitute a separately prepared complex in the ratio 1:1.2-2.8 of jojoba ester:polymer.

A preferred copolymer is Acrylates Octylacrylamide Copolymer with an acidity of 2.4 meq/g, which is a hydrophobic, alcohol-soluble, carboxylated acrylates/octylacrylamide copolymer that is soluble in ethanol, isopropanol and fatty alcohols. It can be made water-soluble or dispersible in water by neutralising the carboxy groups with a water-soluble base such as triethanolamine and can thus be easily washed off the skin with soap, if necessary. Due to the interaction of the copolymer with the hydrolyzed jojoba ester the fragrance molecules are integrated into a complex and remain bonded to the skin for a very long time. At the same time, the complex has a strong water-repellent effect, thus very good endurance of the fragrance on the skin is achieved during rain, sweat and swimming.

Title: Composition and method for levelling hair colour

US Patent: 8,317,881

Appl. No. 13/382,797

Date Granted: November 27, 2012

Assignee: KPSS-Kao

The term "levelling" means that hair colour is made more uniform. Making streaks, lightening and bleaching are commonly used hair dressing practices in order to get lighter coloured hair in part or as a whole-in order to provide an attractive appearance. In practice this is only for a limited time because of the unattractive contrast between the re-growth and lighter coloured hair. This is especially a problem when the re-growth is a considerably darker than the lighter parts and it is desirable to restore the attractive appearance without extensive additional chemical treatments.

The patent relates to a composition and method of levelling hair colour, especially lighter coloured hair. Claimed is an aqueous composition for levelling hair colour comprising at least one fatty acid salt and one or more amphoteric surfactants in a composition of pH between 5 and 12.

The composition is in two parts; Composition A comprises 2 – 3% by weight of at least one oxidizing agent, preferably hydrogen peroxide. It may also include ingredients commonly used in oxidising compositions such as stabilisers, chelating agents and phosphoric or lactic acid for adjusting pH. Surfactants may be included to increase miscibility and as solubilising aids for substances such as fragrances and anti-foaming agents.

Composition B is an aqueous composition comprising at least one fatty acid salt, preferably formed in situ and most preferred are ammonium or substituted ammonium salts of oleic and linoleic acids. The salt is formed in-situ during the preparation of composition B by the reaction of the fatty acid with an amine, which is either ammonia or a substituted ammonium compound and most preferred is monoethanolamine.

Composition B also contains one or more betaine-type amphoteric surfactants such as coco betaine and cocamidopropyl betaine and an anionic surfactant such as alkyl ether sulphates, alkyl polyether

carboxylic acids, alkylamido polyether carboxylic acids and acyl aminocarboxylic acids and their salts. It may also contain a non-ionic surfactant of HLB 4 – 7 and glyceryl fatty acid esters get special mention, cetearyl alcohol and at least one silicone surfactant and preferred are ethoxylated and/or propoxylated dimethicones. The patent names almost all possible additives for cosmetic compositions for possible inclusion in Composition B and those interested are advised to carefully study the full patent.

An illustrative formula of the basic composition follows, all % are by weight.

Composition A		**Composition B**	
Hydrogen peroxide	3.0	Oleic acid	9.0
Phenacetin	0.1	Cocamidopropyl betaine	18.0
EDTA	0.3	Ammonium hydroxide	4.0
Phosphoric acid q.s. to pH 3.0		Composition B had a pH of 10.5	
Water q.s. to 100		Water q.s. to 100	

The two parts are mixed together just prior to at a weight ratio of 2:1 (A:B) and the ready to use composition has a pH of 9.5.

Title: Aqueous hair styling compositions comprising two acrylate silicone copolymers

US Patent: 9,034,305

Appl. No. 14/192,914

Date Granted: May 19, 2015

Assignee: ELC Management LLC

The patent describes a water-based hair styling composition that provides excellent flexibility and hold with a natural appearance by utilising a flexible polymer system comprising an acrylates/dimethicone copolymer and dimethicone PEG-8 polyacrylate in specified ratios. It is incorporated at 0.5 to 5 % by weight in a shampoo comprising 10-35% of at least one primary surfactant; 1-20% of at least one co-surfactant; 0.1%-10% of at least one foam boosting agent; and 0.1% to 5% of at least one thickener.

Hair is styled by applying at least 0.1g of the composition to each 3 g of hair being styled; working the composition throughout the tress so that it contacts most of the hairs being treated; rinsing the tress with water to remove excess shampoo from the hair and heat styling the hair to impart one or more curls to the tress.

Tests show that overall, a topical hair composition comprising acrylates/dimethicone copolymer and dimethicone PEG-8 polyacrylate in ratios of about 2:1 to 5:1, as the only or main curl retention agents, are useful for retaining curl in styled hair.

Title: Hair treatment systems and methods using peptides and other compositions

US Patent: 9,314,423

Appl. No. 13/801,488

Date Granted: April 19, 2016

Assignee: Transdermal Biotechnology, Inc.

The patent describes compositions and methods for transdermal delivery and treatment of hair or scalp conditions, such as baldness, thinning hair and loss of hair pigmentation. It involves administering, to the skin and/or hair of a subject, a composition comprising an effective amount of thyrotropin-releasing hormone (TRH) and nitric oxide to increase hair growth, and a carrier having a phosphatidylcholine component entrapping the nitric oxide.

The composition comprises a lecithin, such as phosphatidylcholine, which is present in liposomes, micelles, or other vesicles containing nitric oxide, peptides, or both. It is believed that nitric oxide may increase vasodilation and promote beneficial neural signalling. Thyrotropin-releasing hormone (TRH) is a peptide, which are useful as therapeutic agents in the treatment of hair or scalp conditions.

TRH is believed to promote hair-shaft elongation, prolong the hair cycle growth phase (anagen), and increase proliferation of hair matrix keratinocytes. TRH may also stimulate melanin synthesis, tyrosinase transcription and activity, melanosome formation and melanocyte dendricity in human hair follicles. TRH may act synergistically with nitric oxide to increase blood flow, which can be used to stimulate hair follicle growth.

The nitric oxide gas is entrapped within a liquid crystal multilamellar structure and may be stored with little or no loss or reaction of the nitric oxide over time. It is believed that the liquid crystal is highly penetrating, such that nitric oxide and the peptide can be delivered to the epidermis, dermis and dermal vascular for systemic release as well as to subcutaneous fat and may act as a sustained release and delivery system.

The composition can take the form of a gel, cream, lotion, ointment or as a solid stick that can be rubbed or sprayed onto the scalp and, in addition to the materials mentioned, the compositions may also contain hair growth promoting agents including minoxidil, finasteride, and corticosteroids. When the composition is topically applied the liquid crystal structure is broken by pressure and the water content of the scalp and releases the nitric oxide and peptide.

Shaving remains the single most important part of male grooming so abstracted are a patent for a wet-shaving gel, a pre-shave composition for those preferring an electric razor and a multifunctional hair oil.

Title: Non-aerosol Shaving gel free of thickening and gelling agents

US Patent: 6,627,185

Appl. No. 09/915,711

Date Granted: September 30, 2003

Assignee: The Gillette Company

The patent describes a non-aerosol shaving composition in the form of a clear gel comprising water, an alkanolamine soap and a solubilising agent. The soap is completely dissolved in the water content of the gel and the amount of soap and solubilising agent is sufficient to provide the soap in the hexagonal liquid crystal phase in the composition. Apparently, when the soap is in the hexagonal liquid crystal form, a stable gel is formed without the need for added thickening or gelling agents.

This gel form facilitates ease of application because it spreads easily and facilitates ease of rinsing because the addition of water readily transforms the composition to a less viscous soap phase form. The alkanolamine soap is preferably triethanolamine myristate formed in-situ and the preferred levels by weight are 23-26% soap and about 1- 3%, solubilising agent. The solubilizing agent is a bipolar molecule with a hydrophobic hydrocarbon tail and of the many named benzyl alcohol is preferred.

The shaving composition may also include about 1- 5%, of a non-ionic surfactant like sodium lauroyl sarcosinate and about 1- 3%, of an anionic surfactant such as sodium laureth sulphate. Optionally the final composition may include a humectant such as glycerin, hexylene glycol or sorbitol, typically in an amount of about 3- 10%, and one or more polymers to increase lubricity and improve foam capacity or stability. Preferably the amount of polymer(s) should be kept to a minimum, 0.1- 0.5% is suggested so as not to interfere with rinsing. Suitable polymers include polyethylene oxides, polyacrylamides, polyvinyl pyrrolidines and polyquaternium-39. Other ingredients to improve aesthetics and shelf life may also be included.

Title: Pre-shave preparation with enhanced lubricity

US Patent: 8,173,110

Appl. No. 12/954,388

Date Granted: May 8, 2012

Assignee: Combe Incorporated

According to the applicants, when consumers use a pre-shave product in conjunction with an electric razor, they can sense the friction between the skin and the razor head. Friction can lead to uncomfortable skin irritation and friction between the razor head and skin will distort skin in front of the razor. This effectively changes the angle of the razor head to the beard hair being cut and thereby greatly reduces the efficiency of the shaving process. Claimed is a composition to reduce skin friction, afford a closer shave and smoother skin while using an electric razor. It comprises at least one polyfluoroalkyl dimethicone polymer, a volatile component and a suspending agent to suspend the polyfluoroalkyl dimethicone polymer in the volatile component.

The volatile component is preferably ethanol, present at about 70%, which serves as a carrier for the polyfluoroalkyl dimethicone component, present at from 1-5%. The composition is quick drying to rapidly evaporate any moisture on the face and temporarily draw moisture from hair. This causes the hair to become stiffer, stand erect and make it easier for an electric razor to cut the hair close to the skin. Most preferably the suspending agent is acrylates C10-30 alkyl acrylate crosspolymer present at up to 10% by weight.

Optionally, the composition may contain from about 1% to about 5.0% by weight of a suitable emollient to soften and soothe the skin. This includes hydrocarbons, silicones, fatty alcohols, fatty acids, synthetic or natural esters and combinations thereof. Emollients are useful in providing a cost effective pre-shave composition by reducing the amount of the polyfluoroalkyl dimethicone component necessary. Other ingredients may be added to improve the performance, aesthetics and shelf life of the final composition and these include skin conditioners, humectants, colour, fragrance, antioxidants, chelators, natural extracts, vitamins, UV light absorbers, opacifying agents and solvents.

Title: Composition of hair oil for stimulation of hair growth, control of hair fall, dandruff and infections thereof

US Patent: 9,452,129

Appl. No. 14/876,470

Date Granted: September 27, 2016

Assignee: Indfrag Biosciences Inc.

The patent claims an improved composition of hair oil for stimulation of hair growth, control of hair fall, dandruff and infections thereof. The composition additionally claims to provide a cooling effect

and darkening of hair upon continuous use of the hair oil by the subjects and may alternatively be used to reduce/remove psoriasis.

According to the applicants, dandruff is a common chronic scalp condition marked by flaking of the skin on the scalp. As skin cells die, a small amount of flaking is normal as the epidermal layer continually replaces itself. Dandruff is produced when the skin of the scalp exfoliates excessively. Another cause of dandruff is fungus, especially an abundance of the fungus Pitrosporum ovale. Psoriasis is a long-term chronic skin problem that causes skin cells to grow too quickly, resulting in thick, white, silvery, or red patches of skin. Normally, skin cells grow gradually and flake off about every 4 weeks but in psoriasis, new skin cells move rapidly to the surface of the skin in days rather than weeks. They build up and form thick patches called plaques and most often appear on the knees, elbows, scalp, hands, feet, or lower back. The common causes of hair loss are genetic predisposition, endocrine disorders, medication, radiation, chemotherapy, and exposure to chemicals. Other possible causes are nutritional factors, generalised or local skin diseases, stress, child birth, alopecia and mechanical damage such as hair styling treatment and hair braids and weaves.

The patented composition is claimed to address these disorders. The principal ingredients are 50-60% capric/caprylic triglycerides, 10-20% mineral oil, 25-35% coconut oil, 0.5-0.88% ylang ylang oil, 0.1-0.2% dipropylene glycol, 0.01-0.05% Centella asiatica extract and 0.1-0.2% butylated hydroxy toluene. Clinical trial study results show the composition is effective in improving the number of active hair follicles, the length of hair and hair density. Although no figures are given for the control of dandruff it is claimed to be effective thereby promoting improved hair growth in the subjects.

Title: Encapsulated colorants for natural skin appearance

US Patent: 8,071,078

Appl. No. 10/943,184

Date Granted: December 6, 2011

Assignee: BASF SE

The applicants write that applying a personal care or cosmetic formulation composition incorporating a blend of microencapsulated colouring agents produces desirable effects upon application. Particularly applying a blend of more than one primary colour is an effective method for producing natural, textured skin tone effects.

Claimed are cosmetic compositions that contain a blend of at least 2 microencapsulated colorants that produce a natural, textured tone when topically applied to human skin. The encapsulating material is a polymeric matrix formed from a blend of monomers comprising an unsaturated ionic monomer and an unsaturated hydrophobic monomer. Suitable monomers are styrene, methyl methacrylate, tertiary butyl methacrylate, phenyl methacrylate, cyclohexyl methacrylate and isobornyl methacrylate.

Various means of cross-linking the monomers are described. For example the polymer may be prepared by copolymerizing the ammonium or volatile amine salt of an anionic monomer with the hydrophobic monomer. It is claimed that the particular combination of ionic monomer and hydrophobic monomer provides polymers with the right degree of hydrophilicity and hardness that are responsible for the impermeable nature of the microcapsules. They protect the colorant until ruptured by heat or friction on application to human skin.

The colours are distinct from each other and are primary colours, preferably red and yellow, and they constitute up to 40% by weight of the microcapsules. Any inorganic or organic pigment or colorant approved for use in cosmetics is suitable. Preferred pigments include the lakes, iron oxides, titanium

dioxide and hydrophobic dyes and these are preferred for make-up. Certified dyes can be water-soluble but oil-soluble are not suitable.

Encapsulated microsphere average diameters of 0.1 to 50 microns are preferred and preferably the cosmetic preparation is in the form of a liquid such as liquid make-up, day creams or facial lotions and creams.

Title: Color cosmetic compositions for topical anti-aging skin treatment

US Patent: 8,298,555

Appl. No. 11/809,981

Date Granted: October 30, 2012

Assignee: Discovery Partners

Claimed are colour cosmetic compositions for anti-aging treatments that utilize plant-based copper antioxidant complexes. The compositions are for topical application and have a pH of from about 7.2 to about 7.6 and contain a liposome dispersion having a pH of from 7.5 to 8.5.

The liposome dispersion consists of submicron liposomal therapeutic units having a lipid shell and containing an aqueous, non-acidic solution of a water-soluble botanical copper-antioxidant complex. They compositions also contain at least one skin penetration-enhancing ingredient and at least two cosmetic colorants selected from the group consisting of inorganic pigments, organic colorants, and synthetic or natural pearlescent pigments.

The water-soluble botanical copper-antioxidant complex is a sodium copper chlorophyllin complex and the lipid shell comprises one or more phospholipids or phospholipid derivatives. The penetration of the copper-pigment complex into the skin is enhanced with the inclusion of penetration enhancing substances and by encapsulating the copper-pigment complex within liposomes.

The compositions described are designed, in part, to deliver copper to binding sites in the skin, where it can be utilized to form enzymes and wound-healing copper-peptides. They provide copper to copper-dependent antioxidant enzymes responsible for elimination of free radicals generated in the skin by ultraviolet light, reactive oxygen forms, and microbe activity, preventing, reducing and eliminating the signs and symptoms of photo-damage. Simultaneously they supply to the skin botanical pigments which are natural antioxidants, so as to further reduce oxidation damage.

Title: Mascara composition containing shape-memory polymers, gels, and fibers

US Patent: 8,263,057

Appl. No. 11/959,321

Date Granted: September 11, 2012

Assignee: Avon Products, Inc.

Claimed are compositions containing an eyelash curling or branching agent, or a skin-lifting mask or lotion. The mascara composition comprises a shape memory polymer (SMP), at least one film-forming polymer and at least one wax .The skin-lifting mask or lotion comprises an SMP, a water phase and an oil phase and leads to a make-up product with a skin-lifting effect.

The SMP is a co-polymerized acrylic acid and stearyl acrylate polymer cross-linked with methylenebisacrylamide and sodium acrylate. According to the applicants shape memory substances

are able to be deformed into a temporary configuration and then restored to the original parent geometry by application of stimuli such as temperature, light, force, chemicals and electricity.

The stated objectives of the patent are to provide long-lasting ending or branching mascara, face mask or face lifting compositions containing SMP. The SMP will typically be formulated as a mascara product and therefore may be applied to the lashes in conjunction with other ingredients such as, for example, at least one film-forming polymer and at least one wax in a cosmetically acceptable vehicle, which is preferably water-based.

The film-forming polymer improves the wear of the composition, and can confer transfer-resistance to the make-up product. The film-forming agent may be any that is cosmetically acceptable for use around the eye and preferred are PVP and sodium polyacrylate. The mascara compositions may also contain at least one wax. The wax makes it possible to soften the composition deposited on the eyelashes and may be natural or synthetic. Particularly preferred are beeswax, carnauba wax and paraffin wax and these will form part of the oil phase in an oil-in-water (o/w) emulsion

A method is described for imparting a curling or branching effect to eyelashes comprising application of the SMP composition then increasing the temperature using hot air or a heated mascara applicator. The SMP will change shape from straight to curl very quickly and the curling effect will remain permanent on cooling. It can also change from a single fibre to split fibres, which provides a branching effect and leads to fuller eyelashes. The mascara adheres well to the eyelashes during and after application and provides the eyelashes with good instantaneous loading.

The compositions may also be in the form of a coloured make-up product for the skin, such as a foundation, mask, face powder, serum, concealer or a make-up product for the body or a lipstick. The product for lifting the skin of the face is a hydrogel composition containing about 5% to about 20% by weight of thermally activated SMP. The gel is applied to the face as a mask then the temperature is increased to shrink the gel, resulting in a skin-lifting effect.

Fragrance is an important part of cosmetics; the first abstract describes a method of improving fragrance stability; the second one describes a perfume ingredient selection process and the third, a method of extracting and solubilising essential oils without using petrochemicals.

Title: Method for formulating active fragrance ingredients in order to protect them and increase their remanence

US Patent: 8,461,098

Appl. No. 12/600,482

Date Granted: June 11, 2013

Assignee: Coatex S.A.S., France

Claimed is a new method for formulating active fragrance ingredients in such a way as to protect them and to slow their evaporation. It relies upon the use of thickening acrylic emulsions containing hydrophobic groups at a pH above 5.These emulsions allow the active fragrance ingredients to be trapped by encapsulation in order to promote their protection against the environment while slowing their release kinetics, which translates into the perfume's increased effectiveness (remanence phenomenon).

Active fragrance ingredients contained in perfume formulations can prove to be chemically unstable and vulnerable to external stresses such as oxidation. In addition these organic compositions are volatile and the consumer will search for a prolonged fragrance effect developed by the perfume purchased. Thus it is advantageous to have a means that allows protection and gradual release of a

large number of different chemical structures, since a perfume can contain more than 100 active fragrance ingredients.

The applicants claim a method of encapsulating fragrance ingredients by mixing a HASE emulsion (Hydrophobically Alkali Swellable Emulsion) with at least one active fragrance ingredient and water. This mixture should have a pH greater than 5; preferentially 7.The pH is then adjusted by the addition of acid to below 5, preferentially to 3; in order to achieve dispersion of solid particles consisting of the polymer and the active ingredients. The active ingredients remain trapped and are still protected and their evaporation speed is reduced.

It is claimed that the fragrance ingredients are entrapped during the initial mixing stage and can be incorporated in to a cosmetic composition. Alternatively the precipitated dispersion may be used or the water may be removed from the dispersion by evaporation of centrifuge to provide solid particles of protected fragrance.

The preferred HASE ingredient is an acrylic copolymer trade named Rheotec 3800 from BASF; the preferred alkali to neutralise the emulsion is sodium hydroxide and the preferred acid to lower pH is phosphoric acid.

Title: Method for selecting perfume ingredient, method for formulating fragrance, and preference-enhancing agent

US Patent: 8,507,564

Appl. No. 11/997,770

Date Granted: August 13, 2013

Assignee: Shiseido Co., Japan

The applicants claim that repetitive exposures to a stimulus form a favourable attitude to the stimulus and the more the number of exposures increases the more the liking increases. Cosmetics such as makeup or toiletry products such as shampoos are used almost every day so if a fragrance that enhances a preference by continuous use can be selected and imparted to these products, the continued purchase of the products by consumers can be expected.

Claimed are methods for enhancing a preference for a product by repetitive use. The method involves formulating a perfume composition that includes allyl caproate and ambroxan or geranium oil into a product. The applicants focus on a hair cleansing composition comprising an amphoteric surfactant, a cationic polymer, and an N-acyl-N-methyltaurine-based anionic surfactant, which has excellent use characteristics, and this is enhanced by the selected perfume ingredients.

The perfume ingredient selection is based on evaluating the “density” and “cheerfulness” of it on first exposure and subsequent exposures. It was found that repetitive exposures to certain ingredients increased the perception of that material’s density and cheerfulness. Many materials were shown to improve perception on subsequent exposures and these are listed. For the hair cleanser it was preferred that the ingredient should be one or more selected from the group consisting of allyl caproate, vanillin, octylaldehyde, nutmeg oil, and jasmine oil. It is suggested that these materials can give a favourable first impression of a fragrance, and further enhance the preference by continuous use.

In addition to the perfume ingredients selected other perfume ingredients may be added in appropriate proportions for formulating a preferable fragrance. The patent is extremely long and detailed about the methods of selection and the panellists’ response to numerous perfume ingredients.

Title: Methods and compositions for extracting flavour and fragrance compounds and solubilizing essential oils

US Patent: 8,486,458

Appl. No. 12/938,452

Date Granted: July 16, 2013

Assignee: E I du Pont de Nemours and Co., USA

Solvents derived from petrochemicals are commonly used to extract flavour and fragrance materials from botanical sources for use in adding aroma to consumer products. However, environmental, market, aesthetic and other factors have recently led to desire on the part of consumers and producers for alternatives to petrochemicals as sources for solvents and other components in a variety of products.

It is claimed that there is a need for materials that are non-petroleum based, non-volatile, non-toxic, non-hazardous and biodegradable, and have high efficacy to extract flavour and fragrance materials from plants and to solubilise essential oils and other botanical extracts for use in consumer and industrial products. It is also desirable to have methods that are simple and safe, and eliminate the need for removal of high VOC petroleum-based solvents. It is further desirable to be able to use renewably sourced and biodegradable materials in consumer and industrial products containing botanical extracts.

Essential oils are the volatile, lipophilic substances obtained from plant materials such as shrubs, flowers, trees, roots, bark, and seeds They are mainly hydrocarbons or compounds derived from mono- and sesquiterpenes, phenylpropanoids, amino acids and from fatty acids. Claimed is a method for extracting essential oils from plants using a polytrimethylene ether glycol homopolymer or copolymer and isolating the extract from the plant material by filtration.

Polytrimethylene ether glycols are non-volatile, generally non-toxic, non-hazardous, materials which can be renewably sourced as they are made using 1,3-propanediol, which is obtained by a fermentation process. Low molecular weight polytrimethylene ether glycol is used to extract essential components of the natural plant materials first by mixing both materials, allowing sufficient time to dissolve, and then by removing the non-essential components that are not dissolved by filtration.

Polytrimethylene ether glycol polymers exhibit desirable solubility characteristics for many natural plant materials and can used without further purification in cosmetic, personal care, pharmaceutical or industrial applications. Alternatively the volatile flavour and fragrance materials can be isolated from the extract by distillation. Polytrimethylene ether glycols and their esters are also very effective in dissolving the essential oil extracts of plant sources, and can be used as solubilisers.

The following abstracts describe three ways of treating the body; the first by utilising a base formula to which suitable active ingredients may be added. The second patent claims a method of skin lightening and the third describes the provision of a slimming product.

Title: Skin treatment systems

US Patent: 8,268,335

Appl. No. 12/568,165

Date Granted: September 18, 2012

Assignee: Greyson Int. Inc. Fl

Claimed is a basic facial and body treatment formulation as a starter system that can be used to create skin moisturisers, skin lighteners, skin pigmenting agents, sunscreens, antioxidants, line reducing products, wrinkle reducing products, anti-cellulite products, pharmaceuticals and the like.

The background to the patent discusses existing cosmetic formulations as comprising about 75% water plus emollients and 4% to 6% non-ionic and anionic emulsifiers to form oil-in-water (o/w) emulsions. After topical application the water evaporates leaving a concentration of emulsifiers on the skin that cause the remaining product to be water-soluble and active and useful ingredients in the product can be removed by perspiration from the user. Also the residual emulsifying agents can emulsify important skin lipids that make up the protective barrier of the skin, which may then be lost by washing. This increases moisture loss and skin dryness and damages the protective lipid layer of the skin.

The aim of the inventers is to provide cosmetic products that do not remove the protective skin lipids thus leaving the skin with a better moisture level and at a more desirable pH. This is achieved by providing a base formulation that includes 1 – 5% cationic emulsifying agent; 1 – 10% liquid polymer and a buffer with quantity sufficient for pH 3.8-6.2 in an emulsion. The preferred emulsifier is distearyldimonium chloride; the liquid polymer is saccharide isomerate and the buffer system is sodium lactate with lactic acid. The basic emulsion also contains in its aqueous phase glycerin, butylene glycol and PPG-51/SMDI copolymer. The oil phase is glyceryl stearate, propylene glycol stearate, cetyl alcohol, jojoba oil; isocetyl stearate decamethylcyclopentasiloxane/dodecamethyl cyclohexasiloxane, phenoxyethanol, Cl2-15 alkyl benzoate, ceramides, soy sterols and PPG-12/SMDI copolymer. The phases are combined to form an emulsion in cream form.

To the basic formulation can be added active ingredients to provide functional cosmetics; for example UV absorbers can be added to create a sunscreen; peptides can be added to form an anti-wrinkle product and sodium hyaluronate can be added to improve its moisturising properties. When the preparations are applied to the skin, the positively charged cationic emulsifying agent combines with the negatively charged skin and its emulsifying power is destroyed. Accordingly no matter how long the preparation is allowed to remain on the skin it will not emulsify or remove the skin's natural and protective emollients when the preparation is washed off at night.

Title: Skin lightening method

US Patent: 8,293,801

Appl. No. 10/599,779

Date Granted: October 23, 2012

Assignee: Ho; Thienna, Ca

Claimed is a method for lightening the natural skin tone or for treating disorders of hyperpigmentation by delivering an effective amount of methyl sulfonyl methane (MSM). Delivery may be accomplished by topical application, oral ingestion, or a combination of both and the skin lightening effect may be enhanced by application of an exfoliant during the treatment period. A transdermal patch may be used to deliver MSM to specific skin areas.

For oral application the effective amount is at least 133 mg MSM per kilogram of body weight per day and this may be accompanied by vitamins, minerals and antioxidants with treatment continuing for at least 3 months. For topical application a suitable vehicle containing up to 22% MSM is applied on a daily basis. The vehicle may be a solution or it may be a cosmetic carrier such as a cream, a

lotion, or a gel. It is preferred the skin is also treated with an exfoliant such as lactic or glycolic acid twice weekly to stimulate skin cell renewal.

The inventors suggest that the delivery of an effective amount of MSM to the epidermal cells lightens skin colour by altering melanogenesis. In particular, MSM causes dopaquinone to be diverted towards the production of pheomelanin, rather than eumelanin, by increasing intracellular sulphur levels. When the intracellular sulphur concentration is relatively high, melanogenesis automatically leads to an increased synthesis of sulfhydryl-dopa conjugates, resulting in the synthesis of the lighter pheomelanin instead of the darker coloured eumelanin.

Title: Utilization of peptides as active ingredients for slimming

US Patent: 8,318,681

Appl. No. 3/177,810

Date Granted: November 27, 2012

Assignee: ISP Investments Inc.

Hypodermal adipose tissue is the largest energy reservoir of the human body. It is able to store lipids in the form of triglycerides by a process of lipogenesis, and then release them in the form of fatty acids and glycerol by a process of lipolysis. It is the equilibrium between these two metabolic pathways which governs adiposity. The lipid reserves of the body are constantly being renewed and have a close relation to the nutritional intake and energy needs of the body.

If disequilibrium occurs between the processes of lipogenesis and lipolysis, the volume and the number of adipocytes may increase. Excessive development of the adipose mass may then translate into modifications in the appearance of the skin, or even evolve into an overweight condition of the individual, possibly to the point of obesity. Cellulite involves a hypertrophy of the adipose cells by overloading with triglycerides, water retention, slower venous and lymphatic circulation and loss of skin suppleness. The skin takes on a quilted and padded appearance and in the most advanced stage an "orange peel" appearance.

Claimed is a method of using proteins, polypeptides and peptide fragments of the SIRT family of proteins as active ingredients for slimming, alone or in combination with at least one other active agent in a cosmetic composition. The peptides are intended for the treatment of cellulite and are used to decrease, eliminate or prevent excess fat beneath the skin.

The inventors claim several studies have shown that there is a relation between energy input and life span and that the SIRT protein was responsible for this linkage. SIRT1 causes mobilization of fat in the adipocytes and SIRT proteins are considered to be potential therapeutic targets for treatment of dysfunctions or ailments connected with obesity, diabetes, and hyperlipidemia.

The peptides described in the patent have an effective action on the adipocytes and significantly decrease the quantity of triglycerides contained in the adipocytes of the hypodermis. This is probably due to a blocking of the storage of triglycerides that result in hypertrophy of the adipocytes and succeeding hyperplasia. Thus, when in the course of adipocyte differentiation the quantity of triglycerides present does not increase, the volume of the adipocytes and their number also will not increase. The cellulite tissue develops no further, and the orange peel effect is diminished.

The peptides can be administered in any cosmetic composition suitable for topical application and are present up to about 500 ppm although 50 ppm is preferred. The peptides can advantageously be combined with any other ingredient for stimulating the exfoliation of the skin, inhibiting lipogenesis or stimulating lipolysis, such as derivatives of xanthine. Examples are caffeine, theophyllin,

theobromine and etamiphyllin and its derivatives and the patent gives illustrative formulae for the preparation of slimming cream and gels.