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(54) Title: PERSONAL HYGIENE TABLET COMPOSITION

(57) Abstract: A personal hygiene composition in tablet form is directed to a cleansing tablet composition comprising: (a) from about 3.0 % to about 50 % of a cleansing component; (b) from about 0.02 % to about 5.5 % of a thickening agent; (c) from about 0.25 % to about 10 % of a conditioning agent; and (d) from about 35 % to about 85 % a tableting carrier. The thickening agent is selected from the group consisting of xanthan, dextran, and cellulose derivatives.

PERSONAL HYGIENE TABLET COMPOSITION

FIELD

The present invention generally relates to a personal hygiene composition in tablet form. In particular, the present invention relates to a personal hygiene tablet composition for skin and hair cleansing comprising a cleansing component in combination with a tableting carrier.

BACKGROUND

As is known, several skin cleansing products having different forms are available on the market, including, for example, solid or bar type products of different shapes, powder, gels, pastes, and liquid products. Historically, the most popular form for personal skin cleansing products is solid or bar form with several shapes. Solid or bar type products, however, are unlikely to dissolve smoothly when used due to the hardness of products in general. Further, after the use, such solid and/or bar products tend to be left on a countertop or a holder in contact with water, such that the solid or bar soap products are caused to soften into paste-like residue.

The liquid form of personal cleansing products is recently becoming more popular around the world. Although such liquid products are easy to use, *e.g.*, lathering easily between the palms or on a sponge, liquid products may drain from a container and soil a container when used and/or stored. Moreover, because of high amount of water content in the product, such liquid products may be favorable for the growth of fungi and/or bacteria. Further, the larger the volume the higher cost for shipment and in storage.

Tablet is a typical product form seen in various industries, because of the associated ease of manufacturing and handling, *e.g.*, storing, carrying in bags, or using. Particularly, consumers prefer to use such portable, easy-to-handle products when traveling or participating in out door activities such as camping. Therefore, such convenience of tablets and the fact that products are stable and

provide no messiness may be desirable in storage and carrying in various situations including that described above.

Examples of previously-known cleansing tablets include those described in Constantine et al. U.S. Patent 4,996,006 issued February 26, 1991, disclosing a solid shampoo tablet composition containing a detergent and water; and Imperatori U.S. Patent 5,062,994 issued November 5, 1991, disclosing water-free cleansing composition in tablet form which contains powder cleansing substances and powder absorbing powders. However, conventional tablet products tend to have a hard solid compact matrix, such that may not soften or dissolve easily when used, particularly when only a small amount of water is applied.

Based on the foregoing, there is a need for a personal hygiene composition for cleansing skin or hair, which has the improved dissolution and disintegration properties of tablets, and particularly which dissolves into a liquid form rapidly when contacted with water. None of the existing art provides all of the advantages and benefits of the present invention.

SUMMARY

The present invention is directed to a personal hygiene composition in tablet form comprising: (a) from about 3.0% to about 50% of a cleansing component; (b) from about 0.02% to about 5.5% of a thickening agent; (c) from about 0.25% to about 10% of a conditioning agent; and (d) from about 35% to about 85% a tableting carrier. The thickening agent is preferably selected from the group consisting of xanthan, dextran, cellulose derivatives, and mixtures thereof.

These and other features, aspects, and advantages of the present invention will become better understood from a reading of the following description, and appended claims.

DETAILED DESCRIPTION

While the specification concludes with claims particularly pointing out and distinctly claiming the invention, it is believed that the present invention will be better understood from the following description.

All percentages and ratios used hereinafter are by weight of total composition, unless otherwise indicated.

All measurements referred to herein are made at 25°C unless otherwise specified.

All percentages, ratios, and levels of ingredients referred to herein are based on the actual amount of the ingredient, and do not include solvents, fillers, or other materials with which the ingredient may be combined as a commercially available product, unless otherwise indicated.

All publications, patent applications, and issued patents mentioned herein are hereby incorporated in their entirety by reference. Citation of any reference is not an admission regarding any determination as to its availability as prior art to the claimed invention.

All ingredients useful herein may be categorized or described by their cosmetic and/or therapeutic benefit or their postulated mode of action. However, it is to be understood that such ingredients can, in some instances, provide more than one cosmetic and/or therapeutic benefit or operate via more than one mode of action. Therefore, classifications herein are made for the sake of convenience and are not intended to limit an ingredient to the particularly stated application or applications listed.

Herein, "comprising" means that other steps and other components which do not affect the end result can be added. This term encompasses the terms "consisting of" and "consisting essentially of."

Herein, “cosmetically-acceptable carrier,” means one or more compatible dermatologically-acceptable solid or liquid filler diluents or encapsulating substances.

Herein, "dermatologically-acceptable," means that the compositions and/or emulsions or components thereof so described are suitable for use in contact with human skin without undue toxicity, incompatibility, instability, irritation allergic response, and the like, commensurate with a reasonable benefit/risk ratio.

Herein, “solid tablet” means a material which has a hard shape and is made by compressing granules pre-mixed into a predetermined shape or direct compression of ingredients contained, which includes, *e.g.*, pills, lozenges, and troches.

Herein, “paste” means a material which is in smooth liquid form having higher or lower viscosity, *e.g.*, gel form and cream form.

A. Personal Hygiene Composition

The present invention is directed to a personal hygiene composition in tablet form comprising: (a) from about 3.0% to about 50% of a cleansing component; (b) from about 0.02% to about 5.5% of a thickening agent; (c) from about 0.25% to about 10% of a conditioning agent; and (d) from about 35% to about 85% a tableting carrier. The thickening agent of the present composition is preferably selected from the group consisting of xanthan, dextran, cellulose derivatives, and mixtures thereof. Herein, "personal hygiene composition," means a composition for cleansing the human body, particularly used for skin or hair cleansing.

The personal hygiene composition of the present invention provides desirable dissolution, in that the solid matrix of the cleansing tablet quickly transforms into a thick and smooth viscous paste, when contacted with water. Such desirable property is due to the tablet matrix having higher porosity than the conventional tablet composition. Without being bound by theory, it is believed that water applied immediately penetrates into the tablet matrix when contacted so as to hydrate the tablet composition, even if the amount of water applied is small. The hydration leads to transformation of the tablet composition into a smooth and thick viscous paste or soft gel form. In general, such paste or soft gel can be easily scrubbed between the palms or on a body surface with the hand or with the use of a sponge or cloth.

Accordingly, the personal hygiene composition of the present invention has a tablet matrix having from about 1.87 g/cm^3 to about 2.58 g/cm^3, more preferably from about 1.92 g/cm^3 to about 2.35 g/cm^3, of bulk density.

The personal hygiene tablet composition also provides improved stability of the products because it contains a low level of water.

B. Cleansing Component

The personal hygiene composition in tablet form of the present invention contains from about 3.0% to about 50%, preferably from about 7% to about 30%, of a cleansing component. The cleansing component is selected from the group consisting of synthetic surfactants, soaps, and mixtures thereof.

The synthetic surfactant useful herein includes those selected from the group consisting of anionic surfactants, nonionic surfactants, cationic surfactants, amphoteric surfactants, zwitterionic surfactants, and mixtures thereof. Suitable surfactants for use in the compositions of the present invention are disclosed in

McCutcheon's, Detergents and Emulsifiers, North American edition (1986), published by allured Publishing Corporation; Steuri et al. U.S. Patent 5,151,210, issued September 29, 1992; McCall et al. U.S. Patent 5,151,209, issued September 29, 1992; Wells et al. U.S. Patent 5,120,532, issued June 9, 1992; Ciotti et al. U.S. Patent 5,011,681, issued April 30, 1991; Bolich, Jr. et al. U.S. Patent 4,788,006, issued November 29, 1988; Grote et al. U.S. Patent 4,741,855, issued May 3, 1988; Oh et al. U.S. Patent 4,704,272, issued November 3, 1987; Collins U.S. Patent 4,557,853, issued December 10, 1985; Dixon et al. U.S. Patent 4,421,769, issued December 20, 1983; and Dickert et al. U.S. Patent 3,755,560, issued August 28, 1973.

A wide variety of anionic surfactants are useful herein. See, *e.g.*, Laughlin et al. U.S. Patent 3,929,678, issued December 30, 1975. Anionic surfactants useful herein include alkylglycerylether sulfonates, alkyl sulfates, essentially saturated C_{15-20} alkyl sulfates, acyl isethionates, acyl sarcosinates, alkyl monoglyceryl sulfates, trideceth sulfates, acyl lactylate, methylacyl taurates, paraffin sulfonates, linear alkyl benzene sulfonates, N-acyl glutamates, alkyl sulfosuccinates, alpha sulfo fatty acid esters, alkyl ether carboxylates, alkyl phosphate esters, ethoxylated alkyl phosphate esters, betaines, alpha olefin sulphates, the alkyl ether sulfates (with 1 to 12 ethoxy groups) and mixtures thereof. Alkyl chains for these surfactants are C_{8-22}, preferably C_{10-12}. The counterions of the anionic surfactants are selected from the group consisting of sodium-, potassium-, ammonium-, trimethyl-, or triethanolamine.

Examples of amphoteric and zwitterionic surfactants useful herein are those which are broadly described as derivatives of aliphatic secondary and tertiary amines in which the aliphatic radical can be straight or branched chain and wherein one of the aliphatic substituents contains from about 8 to about 22 carbon atoms (preferably C_{8-18}) and one contains an anionic water solubilizing group, *e.g.*, carboxy, sulfonate, sulfate, phosphate, or phosphonate. Especially useful herein are the betaines, sultaines, and hydroxysultaines such as cocamidopropylhydroxysultaine (available as Mirataine CBS from Rhone-Poulenc).

Preferably, amphoteric surfactants can be used as a co-surfactant at a lower level of from about 1% to about 10%, but not exist as the sole surfactant in this product. More preferably, those are selected from alkyl-ampho mono- and di-acetates, alkyl betaines, alkyl dimethyl amine oxides, alkyl sultaines, alkyl

amidopropyl betaines, alkyl amidopropyl hydroxysultaines, and mixtures thereof, wherein said surfactants contain C_{12-22} alkyl chains.

Among the nonionic surfactants that are useful herein are those that can be broadly defined as condensation products of long chain alcohols, *i.e.*, C_{8-30} alcohols, with sugar or starch polymers, *i.e.*, glycosides.

Other useful nonionic surfactants includes condensation products of alkylene oxides with fatty acids, *i.e.*, alkylene oxide esters of fatty acids, alkylene oxide esters of 2 moles of fatty acids, alkylene oxide diesters of fatty acids; alkylene oxides with fatty alcohols, *i.e.*, alkylene oxide ethers of fatty alcohols; and mixtures thereof; where the polyalkylene oxide portion is esterified on one end with a fatty acid and etherified (*i.e.*, connected via an ether linkage) on the other end with a fatty alcohol. Nonlimiting examples of these alkylene oxide derived nonionic surfactants include ceteth-1, ceteth-2, ceteth-6, ceteth-10, ceteth-12, ceteraeth-2, ceteareth6, ceteareth-10, ceteareth-12, steareth-1, steareth-2, stearteth-6, steareth-10, steareth-12, PEG-2 stearate, PEG-4 stearate, PEG-6 stearate, PEG-10 stearate, PEG-12 stearate, PEG-20 glyceryl stearate, PEG-80 glyceryl tallowate, PPG-10 glyceryl stearate, PEG-30 glyceryl cocoate, PEG-80 glyceryl cocoate, PEG-200 glyceryl tallowate, PEG-8 dilaurate, PEG-10 distearate, and mixtures thereof.

Still other useful nonionic surfactants include polyhydroxy fatty acid amide surfactants, *e.g.*, coconut alkyl N-methyl glucoside amide.

Preferably, nonionic synthetic surfactant can be used as a co-surfactant at a lower level *e.g.*, from about 1% to about 15% by weight, but not as the sole surfactant in this product.

The cationic synthetic surfactant commonly used in cleansing composition and known in the arts are acceptable. Preferably, the cationic surfactant of the present composition are used as a co-surfactant, but not used as the sole surfactant. The preferred cationic surfactants herein are selected from the group consisting of ammonium salts, particularly quaternary ammonium salts, aminoamides, and mixtures thereof; including alkyl trimonium chloride and methosulfate, dialkyldimonium chloride and methyl sulphate, and alkyl alkonium chloride and methyl sulphate. These surfactants contain C_{12-24} alkyl, aromatic, aryl, or alkaryl chain groups.

Nonlimiting examples of cationic surfactant include dilauryl dimethyl ammonium chloride, distearyl dimethyl ammonium chloride, dimyristyl dimethyl

ammonium chloride, dipalmityl dimethyl ammonium chloride, distearyl dimethyl ammonium chloride, stearalkonium chloride, stearyltrimonium chloride, di-stearyl-dimonium chloride, stearamidopropyl PG-dimonium chloride phosphate, stearamidopropyl ethyldimonium ethosulfate, stearamidopropyl dimethyl (myristyl acetate) ammonium chloride, stearamidopropyl dimethyl cetearyl ammonium tosylate, stearamidopropyl dimethyl ammonium chloride, stearamidopropyl dimethyl ammonium lactate, and mixtures thereof.

Among the surfactants described above, preferred for use herein are those selected from the group consisting of sodium cetearyl sulfate, sodium lauryl sulfate, sodium lauryl sarcosinate, sodium cocoyl isethionate, coamidopropyl betaine, sodium laureth sulfate, cetyl dimethyl betaine, ammonium lauryl sulfate, sodium tallow soap, sodium coconut soap, ceteth-10, steareth-21, steareth-2, ceteth-2, glyceryl stearate, glucose amides, dilauryl dimethyl ammonium chloride, distearyl dimethyl ammonium chloride, dimyristyl dimethyl ammonium chloride, dipalmityl dimethyl ammonium chloride, and mixtures thereof.

The soap includes an alkali metal soap (*e.g.*, sodium or potassium salts) or mixture of soaps of fatty acids containing typically from about 8 to about 24 carbon atoms, preferably from about 10 to about 20 carbon atoms. The fatty acids used in making the soaps can be obtained from natural sources such as, for instance, plant or animal-derived glycerides (*e.g.*, palm oil, coconut oil, soybean oil, castor oil, tallow, lard, etc.) The fatty acids can also be synthetically prepared. Soaps are described in more detail in U.S. Patent 4,557,853, cited above.

In one embodiment, the composition of the present invention can contain a combination of synthetic surfactant and soap materials. The preferable ratio of soap to surfactant is 1 to 25 and more preferably 1 to 18.

C. Thickening Agent

The personal hygiene tablet composition of the present invention contains from about 0.02% to about 5.5%, preferably from about 0.25% to about 3.5%, of a thickening agent. Herein, "thickening agent" refers to a material which provides a desirable consistency, such as swelling the personal hygiene tablet compositions quickly when contacted with water. Such thickening agents in the composition have characteristics such as wetting quickly and absorbing water when contacted, thereby swelling and converting into a paste or a soft gel form.

It is believed that water is absorbed into the structure of the composition maintaining cohesiveness of the composition structure. When more and more water enters the composition structure, more swelling takes place and a paste is formed.

The thickening agents useful herein are selected from the group consisting of xanthan, dextran, cellulose derivatives such as sodium carboxymethyl cellulose and sodium carboxymethyl hydroxyethyl cellulose and mixtures thereof. The preferable cellulose derivatives is sodium carboxymethyl cellulose.

Preferably, the thickening agent of the present hygiene tablet composition may be applied as a co-thickener; as a combination of xanthan with cellulose derivatives or dextran with cellulose derivatives. Particularly, such combination can shorten the hydration time of the cleansing tablet than of xanthan or dextran alone. Further, such combination can improve smoothness of the cleansing composition. The concentration of sodium carboxymethyl cellulose to xanthan or dextran is from about 0.2% to about 3.0%, preferably from about 0.5% to about 2.2% by weight.

D. Conditioning Agent

The personal hygiene tablet composition of the present invention contains from about 0.25% to about 10%, preferably from about 0.5% to about 7%, of a conditioning agent. Herein, "conditioning agent" refers to a material providing benefits of skin feeling after cleansing, *e.g.*, skin mildness, skin moisturizing, treating of skin irritation, dye controlling particularly for hair.

A wide variety of conditioning agents conventionally used in cosmetic products can be used. Preferably, the conditioning agent is silicone-containing components, particularly those having high molecular weight in the range of 10,000 and higher. Such silicone containing components include, but are not limited to, silicone gums, silicone graft polymers, and the like. Other types of conditioning agent include materials derived from natural sources such as aloe vera, plant extracts, pro-vitamins (*i.e.*, panthenol), vitamins, and the like. The preferred conditioning agent is polydimethly siloxane.

E. Tableting Carrier

The personal hygiene tablet composition of the present invention contains from about 35% to about 85%, preferably from about 50% to about 80%, of a

tableting carrier. Herein, "tableting carrier", refers to a material used to enhance softness of the composition and help in dissolution of the composition.

The tableting carriers useful herein include those selected from the group consisting of sugar, sugar alcohols, and mixtures thereof. Preferably, the concentration of sugar to sugar alcohol is less than 40% by weight. Nonlimiting examples of sugars useful herein include lactose, glucose, maltodextrins, and sucrose. Sugar alcohols useful herein include sorbitol, xylitol, mannitol and maltitol.

Preferably, the tableting carrier herein is sugar alcohol in combination with lower level of sugar, preferably from 0 to about 40% of sugar and from about 60% to about 100% of sugar alcohol by weight of tableting carrier. A preferred combination of the tableting carriers in the present invention is mannitol with a lower level of sucrose.

The tableting carrier may further include an insoluble agent. Inclusion of the insoluble agent is surprisingly effective for the porosity of the composition, resulting in improving dissolution of composition. The addition of insoluble agent is depending on its process for making tablet. For example, the insoluble agent particularly useful for conventional tableting process. The insoluble agent useful herein is calcium carbonate, dicalcium phosphate, tricalcium phosphate and precipitated silica. Preferably, the insoluble agent is present less than 70% by weight of the tableting carrier.

The tableting carrier of the present invention may further include a binding agent, if needed. Inclusion of the binding agent is particularly useful when a tableting carrier, such as mannitol, may have a limited ability to bind the components used for the composition. It is believed that insufficiencies in binding ability tend to cause tablets to break off into two pieces along the length during the manufacturing process. This splitting of the tablet is commonly referred to as "capping." The levels and types of binding agent are selected depending upon the character of the carriers, compatibility with other components, and desired characteristic of the final product.

In addition, it is recognized that some tableting carriers of the present invention may also have properties as a binding agent for making tablets. Most of tableting carriers herein, preferably sugar, may be useful for providing improved binding properties of the personal hygiene tablet composition to prevent the tablet from breaking into two pieces.

Examples of useful binding agents other than those described as tableting carriers above include starches such as starch paste and pregelatinized starch, polyvinylpyrrolidone, cellulose derivatives, gelatin, gums, and mixtures thereof. In certain embodiments, the binding agent and the tableting carrier may be made of the same material. Alternatively, the binding agent and the tableting carrier may be altogether different.

The binding agents may be present in an effective amount, preferably from about 0.1% to about 5% by weight, more preferably from about 0.5% to about 3%.

F. Optional Component

The personal hygiene tablet composition of the present invention may further comprise optional components. Herein, "optional components" means one or more compatible solid or liquid fillers, diluents, extenders and the like, which are commonly used in cosmetics as defined herein. The term "compatible" herein means that the components of this invention are capable of being co-mingled with each other, in a manner such that there is no interaction which would substantially reduce the efficacy of the composition under ordinary use situations. Optional components useful herein include, but are not limited to, a tableting aid, humectant, an active, a preservative, an effervescent agent, a color agent, and perfume.

1) Tableting Aid

A tableting aid can be added in order to facilitate forming the cleansing tablets. Herein, "tableting aid" refers to an ingredient that is generally added to the granules in small quantities, to provide flowability to the granules, to reduce friction, and/or to ease removal of the tablet from the tableting machine. The tableting aid useful herein includes, for example, magnesium stearate, stearic acid, aerosol, talc, and mixtures thereof. The tableting aid in the compositions of the present invention, is preferably present in an amount sufficient to prevent the tablet from sticking to the machine and improve flow characteristic of the compression mixture. The tabelting aid is present at the levels from about 2% to about 8%.

2) Humectant

It may also be desirable to include some humectant material in personal hygiene tablet composition of the present invention to keep it from hardening upon exposure to air. Suitable humectants include polyethylene glycol, sorbitol,

xylitol, other polyhydric alcohols, and mixtures thereof, at a level of from about 0% to about 70%, preferably from about 2% to about 55%, by weight.

3) Actives

The optional component useful herein can also contain actives. Examples of such actives include, but are not limited to, anti-oxidants and radical scavengers, anti-inflammatory agents, antimicrobial agents, sunscreens and sunblocks, and chelators. Other actives useful herein include vitamin derivatives such as vitamin A (*e.g.*, retinoid which are commercially available from a number of sources, for example, Sigma Chemical Company (St. Louis, MO), and Boerhinger Mannheim (Indianapolis, IN) and described in Parish et al. U.S. Patent 4,677,120, issued June 30, 1987; Parish et al. U.S. Patent 4,885,311 issued December 5, 1989; Purcell et al. U.S. Patent 5,049,584 issued September 17, 1991 and U.S. Patent 5,124,356 issued June. 23, 1992; and Purcell et al. Reissue Patent 34,075, issued September. 22, 1992), vitamin B_3 compound; vitamin C, vitamin E, and vitamin K.

(i) Anti-Oxidants and Radical Scavengers: Anti-oxidants and radical scavengers are especially useful for providing protection against UV radiation which can cause increased scaling or texture changes in the stratum corneum and against other environmental agents which can cause skin damage.

Anti-oxidants and radical scavengers such as tocopherol (vitamin E), tocopherol sorbate, tocopherol acetate, other esters of tocopherol, propyl gallate, alkyl esters of uric acid, amines (*i.e.*, N,N-diethylhydroxylamine, amino-guanidine), sulfhydryl compounds (*i.e.*, glutathione), lycine pidolate, arginine pilolate, bioflavonoids, lysine, methionine, proline, superoxide dismutase, silymarin, tea extracts, grape skin/seed extracts, melanin, and rosemary extracts may be used. Preferred anti-oxidants/radical scavengers are selected from tocopherol sorbate and other esters of tocopherol, more preferably tocopherol sorbate. For example, the use of tocopherol sorbate in topical emulsions and applicable to the present invention is described in U.S. Patent 4,847,071, Bissett et al, issued July 11, 1989.

(ii) Antimicrobial Agent: Herein, "antimicrobial agent" means a compound capable of destroying microbes, preventing the development of microbes or preventing the pathogenic action of microbes. Antimicrobal agents are useful, for example, in controlling acne. Preferred antimicrobial agents useful in the present invention are benzoyl peroxide, erythromycin, tetracycline, clindamycin, azelaic

acid, sulfur resorcinol, phenoxyethanol, and Irgasan™ DP 300 (Ciba Geigy Corp., U.S.A.). A safe and effective amount of an antimicrobial agent may be added to emulsions of the present invention, preferably from about 0.001% to about 10%, more preferably from about 0.01% to about 5%, still more preferably from about 0.05% to about 2%.

(iii) Chelators: Herein, "chelator" refers to a compound that reacts for removing a metal ion from a system by forming a complex so that the metal ion cannot readily participate in or catalyze chemical reactions. The inclusion of a chelator is especially useful for providing protection against UV radiation which can contribute to excessive scaling or skin texture changes and against other environmental agents which can cause skin damage.

Exemplary chelators that are useful herein are disclosed in Bissett et al. U.S. Patent 5,487,884, issued January 30, 1996; Bush et al. PCT application 91/16035 and 91/16034, published October 31, 1995. Preferred chelators are furildioxime and derivatives thereof.

4) Preservatives

Preservatives and preservative enhancers may also present in the composition. Such preservatives and preservative enhancers prevent microbial growth in the compositions. Nonlimiting examples of such preservatives and preservative enhancers include water-soluble or solubilizable preservatives including Germall 115, methyl, ethyl, propyl and butyl esters of hydroxybenzoic acid, benzyl alcohol, EDTA, Bronopol (2-bromo-2-nitropropane-1,3-diol) and phenoxypropanol; antifoaming agents; preferably methylparaben, propylparaben, and benzoates. The preservatives generally comprise from about 0.02% to about 0.3%.

5) Effervescent agent

The optional component may further include an effervescent agent to provide bubbles which are sometimes desired for aesthetic purposes. "Effervescent agent," herein means a material that provides effervescence by the reaction of a carbonate source with an acidic source, for example, a carbonate salt and a carboxylic acid. Any ingredients which would be useful conventionally as an effervescence agent in the pharmaceutical and/or cosmetic area may be acceptable herein. Preferably, the carbonate sources herein include calcium carbonate, sodium carbonate, and sodium bicarbonate. Preferred acid sources

useful herein include a citric acid, and a malic acid. The effervescent agent may be present at levels of from about 0.5% to about 20% by weight.

6) Coloring agent

The optional component of the present invention may further include a coloring agent. Preferably, the coloring agent is added with liquid-type ingredients or solution to facilitate uniform distribution and mixing. The coloring agent is present at an effective level, preferably from about 10ppm to about 500ppm, more preferably from about 20ppm to about 250ppm by weight.

7) Other Ingredients

In addition to the above described optional components, the composition of the present invention may further include antifoaming agents; binders; biological additives; bulking agents; perfumes, essential oils, and solubilizers thereof; natural extracts; compounds which stimulate collagen production.

F. Method of making tablets

The personal hygiene tablet composition of the present invention can be produced by any method useful for forming conventional tablets known in the art. These conventional methods include granulating methods: either wet or dry granulating method, preferably wet granulating. Depending on the properties of the ingredients (*e.g.*, cleansing components, thickening agents, conditioning agents, tableting carriers, and the like) to be formulated into granules, one method may provide a more favorable end product over the other method. The wet granulation method is widely used and usually produces the most satisfactory results in tablets. See E.J. de Jong; "The preparation of microgranulates, an improved tableting technique," Pharmaceutical Weekblad, 104(23), pages 469-474, 1969 and E.J. de Jong, U.S. Patent 3,266,992. Direct compression without granulation step may also be chosen for the present composition, as long as producing non-gritty tablets does not cause capping.

In one embodiment, a method for making a personal hygiene tablet composition of the present invention comprises:

(1) adding cleansing component, thickening agent, conditioning agent and tableting carriers, and any of optional component (*e.g.*, humectant, preservative), if needed, to make granules;

(2) passing the granules through #10 mesh;

(3) drying the sieved granules by conventional drying techniques;

(4) sieving again the dried granules through #14 mesh;

(5) mixing the granules of step (4) with oral carriers other than those of step(1) (*e.g.*, thickening agent, sweetening agent, perfume, tableting aids); and

(6) compressing the mixture of step (5) to form tablets by conventional method.

G. Method of use

The personal hygiene tablet compositions of the present invention can be used to clean the skin by:

(1) putting the composition on a palm or on a washing material such as sponge, puff, towel, and the like;

(2) adding an effective amount of water to the composition;

(3) keeping the composition on the palm or the washing material for a few moments until substantially softened, and scrubbing between the palms or on a body surface with the hands or with the washing material until sufficient lathering is obtained.

EXAMPLES

The following examples further describe and demonstrate embodiments within the scope of the present invention. The examples are given solely for the purpose of illustration and are not to be construed as limitations of the present invention, as many variations thereof are possible without departing from the spirit and scope of the invention. Ingredients are identified by chemical or CTFA name.

The components shown below can be prepared by any conventional method known in the art. Suitable methods and formulations are as follows:

Examples I-III:

(unit weight %)

INGREDIENT	I	II	III
Alkyl sulfate	5.6	4.0	7.0
Alkyl ether sulfate	4.0	10.4	3.9
Sodium alkyl sulfate	1.0	1.0	1.0
Xanthan	0.5	0.8	1.3
Sodium Carboxymethyl Cellulose	0.8	1.0	-
Polydimethyl siloxane	1.2	2.0	2.0
Synthetic Silicate	1.0	1.0	1.0
Talc	2.0	2.0	2.0
Magnesium Stearate	0.7	2.5	2.5
Perfume	-	1.0	1.0
Calcium Carbonate	41.6	49.3	55.0
Sugar	-	10.0	8.0
Mannitol	up to 100 %		

The tablets of Examples I to III are made by the method described in "Method for making tablets" section.

Examples IV-V:

(unit weight %)

INGREDIENT	IV	V
Alkyl sulfate	18.0	-
Alkyl ether sulfate	-	18.0
Sodium alkyl sulfate	2.0	6.5
Xanthan	0.5	1.0
Sodium Carboxymethyl Cellulose	0.8	0.5
Polydimethyl siloxane	2.5	0.8
Synthetic Silicate	1.0	-
Talc	1.5	1.7
Magnesium Stearate	1.5	1.5
Perfume	1.0	1.5
Calcium Carbonate	-	2.5
Sugar	8.0	-
Mannitol	up to 100%	

The tablets of Examples IV and V are made by the method described in "Method for making tablets" section, except that after the step 1, the mix is heated in a closed container to a temperature of at least about 80 °C for about 20 minutes with continuous agitation to agglomerate the mix.

The embodiments disclosed and represented by the previous examples have many advantages. For example, they quickly and easily become a paste or a soft gel when contacted with even a small amount water, and thereby provide a desirable dissolution property.

It is understood that examples and embodiments described herein are for illustrative purpose only and that various modifications or changes in right thereof will be suggested to one skill the art and are to be included in the spirit and purview of this application and scope of the appended claims.

What is claimed is:

1. A personal hygiene composition in tablet form comprising:
   (a) from about 3.0% to about 50% of a cleansing component;
   (b) from about 0.02% to about 5.5% of a thickening agent selected from the group consisting of xanthan, dextran, and cellulose derivatives;
   (c) from about 0.25% to about 10.0% of a conditioning agent; and
   (d) from about 35% to about 85% of a tableting carrier selected from the group consisting of sugar, sugar alcohol, and mixtures thereof.

2. The personal hygiene composition of Claim 1, wherein the tableting carrier comprises from about 0 to about 40% of sugar and from about 60% to about 100% of sugar alcohol.

3. The personal hygiene composition of Claim 2, wherein the tableting carrier further comprises an insoluble agent.

4. The personal hygiene composition of Claim 3, wherein the insoluble agent is selected from the group consisting of calcium carbonate, calcium phosphates, and mixtures thereof.

5. The personal hygiene composition of Claim 4, wherein the ratio of the tabletting carrier to the insoluble agent to is from about 30:70 to about 100:0.

6. The personal hygiene composition of Claim 5, wherein the conditioning agent is polydimethyl siloxane.

7. The personal hygiene composition of Claim 1, wherein the thickening agent is a combination of xanthan and sodium carboxymethyl cellulose.

8. The personal hygiene composition of Claim 1, wherein the thickening agent is a combination of dextran and sodium carboxymethyl cellulose.

9. A personal hygiene tablet composition comprising:
   (a) from about 3.0% to about 50% of a cleansing component;

(b) from about 0.02% to about 5.5% of a thickening agent selected from the group consisting of selected from the group consisting of xanthan, dextran, and cellulose derivatives;

(c) from about 0.25% to about 10.0% of a conditioning agent; and

(d) from about 45% to about 95% of a tableting carrier selected from the group consisting of sugar, sugar alcohol, an insoluble agent and mixtures thereof.

10. A skin cleansing process according to which a personal hygiene tablet composition is applied to skin with water, comprising the steps of:

(1) moistening a solid matrix of a personal hygiene tablet composition with water such that the composition transforms into smooth viscous paste or gel; and

(2) scrubbing the paste or gel between the palms or on body surface to transform the paste or gel into foam,

wherein the solid matrix has a bulk density of from about 1.87g/cm^3 to about 2.58 g/cm^3.

INTERNATIONAL SEARCH REPORT

Im .tional Application No
PCT/US 99/14900

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K7/50 A61K7/08

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	EP 0 232 830 A (CRINOS INDUSTRIA) 19 August 1987 (1987-08-19) claims 1-4,8; example 6	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
1 March 2000	09/03/2000

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1

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