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Señores
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES
E. S. D.

REF: Expediente No. 02 099.271 - Solicitud de Patente FASE NACIONAL a favor de COLGATE – PALMOLIVE COMPANY
Titulada: EFECTIVO PRODUCTO SÓLIDO SUAVE PARA EL CUIDADO PERSONAL

RAMIRO CASTRO DUQUE, vecino de Bogotá, portador de la tarjeta profesional No. 1003, obrando como apoderado de la Sociedad COLGATE – PALMOLIVE COMPANY, según lo acredita el documento de Poder presentado en esa División bajo el No. 131, me permito anexar al presente escrito los siguientes documentos:

1. Copias certificadas por la Oficina de Patentes de Estados Unidos de las dos primeras solicitudes presentadas para la misma invención, de las cuales REIVINDICAMOS PRIORIDAD.

De la señora jefe atentamente,

RAMIRO CASTRO DUQUE
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Bogotá, Mayo 28, 2003
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April 13, 2001

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APPLICATION NUMBER: ***09/671,775***
FILING DATE: ***September 28, 2000***

By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

N. Woodson

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Certifying Officer

09-29-00

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I hereby certify that this document and all its noted attachments listed below are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231 Via Express Mail Label EL496936956US on Sept. 28 2000

Signature: Rosemary M. Miano Reg #29,674 — Sept. 28, 2000 (Date)

TRANSMITTAL FOR FILING A NEW UTILITY PATENT APPLICATION

Box: New Patent Application
Assistant Commissioner of Patents
U.S. Patent and Trademark Office
Washington, D.C. 20231

Case Docket No. *IR6449-01*

Transmitted herewith for filing is the **UTILITY** patent application of:

Inventor(s):	Eric Guenin, Jairajh Mattai, John Affitto, John Hogan, John Jonas, Wilson Lee, Elisabeth Linn, Rosemary Munsevac, Xiaozhong Tang, and Kathy Potechin
For (title):	EFFECTIVE SOFT SOLID PERSONAL CARE PRODUCT
Docket No.:	IR Number 6449-01
Deposited for Filing:	*Via Express Mail # EL496936956US on 9/28/2000.*

Enclosed are:

- ☒ Utility Patent Application consisting of 26 Total Pages including 9 Total Claims consisting of 21 pages of specification, 4 pages of claims, 1 page of abstract.
- ☐ Executed Declaration ☒ Non-Executed Declaration
- ☐ An assignment of the invention to the Colgate-Palmolive Company. A separate "Recordation Form Cover Sheet - PTO Form-1595" is also attached.
- ☐ An associate power of attorney
- ☐ FORMAL drawings No. of Sheets: <> Figures: <>
- ☐ INFORMAL drawings No. of Sheets: <> Figures: <>
- ☐ Information Disclosure Statement with Form 1449 and Copies of References

CALCULATIONS FOR PATENT APPLICATION FEE				Other Than a Small Entity	
FOR	CLAIMS		EXTRA NO.	RATE	FEE
Basic Fee					690.00
	Column 1 Total Claims	Column 2 Extra Claims			
Total Claims	9 - 20	= 0	0	X18	0
Independant Claims	10 - 3	= 7	7	X78	546.00
Multiple Dependent Claims Presented				+260	260.00
			TOTAL FEES		$1496.00

- ☒ Please charge my deposit Account No. 03-2455, the amount of $1496.00. A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 03-2455. A duplicate copy of this sheet is enclosed.
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  - ☒ Any patent application processing fees under 37 CFR 1.17.
  - ☒ Any filing fees under 37 CFR 1.16 for presentation of extra claims.

Respectfully submitted,

9/28/00

COLGATE-PALMOLIVE COMPANY

Rosemary M. Miano, Registration No. 29,674

via Express Mail Label No. EL426936950S
filed on 9/28/2000

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Effective Soft Solid Personal Care Product

Field of the Invention

This invention relates to soft solid products made as suspensions and suitable for use as antiperspirants and/or deodorants.

Background of the Invention

There is a continuing trend to develop new and superior cosmetic compositions especially for the reduction and/or elimination of wetness and/or odor under the arms. Particular efforts include developing lower residue products especially with improved efficacy and aesthetics. Various product forms have included sticks (especially gel/sticks), gels, soft solids, roll-ons, aerosols and creams. Of these various forms the sticks, gels, soft solids creams and roll-ons are made with a liquid base material incorporating a solidifying agent and/or gelling agent and/or thickening agent. Generally, these forms include a solution of the cosmetically active ingredient in a suitable vehicle, a suspension of the active ingredient in a carrier vehicle, or a multiphasic dispersion or emulsion in which a solution of the active ingredient is dispersed or suspended in some continuous phase or in which the solubilized active ingredient constitutes the continuous phase.

A variety of soft-solid formulations are known. These include formulations made with the following ingredients:

(a) clay thickening agent and an activator for the clay: for example, U.S. Patent Number 5,019,375 to Tanner et al; and U.S. Patent Number 4,526,780 to Marschner et al;

(b) particulate thickening agents such as fumed silica: for example, U.S. Patent Number 5,069,897 to Orr; and U. S. Patent Number 4,937,069 to Shin;

(c) selected volatile and/or non-volatile alkylmethylsiloxanes such as those including a structuring wax: for example, U.S. Patent Number 5,225,188 to Abrutyn et

al; and PCT applications WO 97/16161 and 16162 both of which are assigned to Unilever PLC; and

(d) triglyceride gellants such as the glyceryl tribehenate described in U.S. Patent Number 5,718,890 to Putnam et al.

The use of a class of compositions known as silicone elastomers in cosmetic compositions has shown some interesting results. PCT case WO 97/44010 and assigned to the same assignee as this application describes a silicone gel material made by combining (a) a volatile silicone material and (b) an organopolysiloxane material (or silicone elastomer) as a gelling agent wherein the organopolysiloxane material (silicone elastomer) can be a reaction product of a vinyl-terminated siloxane polymer and a silicon hydride cross-linking agent. Related technology is also disclosed in PCT case WO 98/00097, WO 98/00104 and 98/00105 assigned to Unilever PLC on cross-linked non-emulsifying elastomers.

U.S. Patent 5,599,533 to Stepniewski et al assigned to Estee Lauder describes a stable water-in-oil emulsion system formed with an organopolysiloxane elastomer, a vehicle in which the elastomer is dispersed or dispersible, a stabilizing agent, a surfactant and an aqueous component. A commercial product known as "REVELATION" retexturizing complex for hands and chest sold by the same assignee contains a silicone gel material with an organopolysiloxane component and octamethylcyclotetrasiloxane.

EP 0 787 758 A1 teaches a method for solvent thickening by using a silicone latex having a plurality of crosslinked polysiloxane particles.

Another recent case assigned to the same assignee as this application is WO 99/51192 and U.S. Patent Application Serial Number 9/273152 which describes antiperspirant compositions with the use of broad categories of elastomers. Other examples of the use of elastomer type materials and/ or methods for processing such materials may be found in PCT cases WO 98/00097; WO 98/00104; WO 98/00105; WO 98/18438; WO 98/42307 all of which are incorporated herein by reference.

Two major problems have been observed when the use of elastomer materials is included in soft solid formulations. The first problem is reduction in efficacy due to the formation of an occlusive elastomeric film which prevents the active from diffusing into the sweat duct. The second problem is the consistency of the product as evidenced by high viscosity and elastic behavior when applied to the surface of the skin. In order to reduce this high viscosity, emollients and solvents have to be added which may negatively impact efficacy of the deodorant and/or antiperspirant. It has been found that the use of a selected type of elastomer in soft solid formulations in combination with polyethylene beads as described herein overcomes these problems.

Thus, it is an object of the invention to provide improved cosmetic compositions with the improvements as previously described and which are useful as antiperspirants and/or deodorants. These and other objects of the invention will be apparent from the following description of the invention.

Summary of the Invention

It has been found that an improved soft solid cosmetic product may be made as a suspension formed with:

(a) a cyclomethicone (and) dimethicone crosspolymer made with an ≡Si-H containing polysiloxane and an alpha, omega-diene of formula CH_2=CH(CH_2)$_x$CH=CH_2, where x=1-20, to form a gel by crosslinking and addition of ≡Si-H across double bonds in the alpha, omega diene, which crosspolymer has a viscosity in the range of 50,000-3,000,000 centipoise (particularly 100,000-1,000,000; more particularly 250,000-450,000 centipoise; and most particularly 350,000 centipoise), preferably with a nonvolatiles content of 8-18% (particularly 10-14% and most particularly 12-13%) in cyclomethicone (for example a D4 or D5 cyclomethicone), (an example of such a crosspolymer composition being DC-9040 from Dow Corning Corporation (Midland, MI) with other types of such crosspolymers (also called elastomers) being described in U.S. Patent 5,654,362, incorporated by reference herein as to the description of such polymers and methods of making such polymers);

(b) polyethylene beads having a density in the range of 0.91-0.98 grams/cm^3 and a particle size in the range of 5-40 microns, wherein the polyethylene beads are used in an amount of at least 2% by weight based on the total weight of the composition;

(c) a volatile silicone;

(d) an emollient (or a mixture of two or more emollients) which may include a non-volatile silicone and an additional amount of a volatile silicone; and

(e) an effective amount of an antiperspirant active material in an amount sufficient to have an antiperspirant and/or a deodorant effect.

The soft solid antiperspirant and/or deodorant product of this invention is an opaque product which leaves little or no white residue when applied and which exhibits improved efficacy and stability as compared to other formulations with different types of elastomers. Reduction of sweat of at least 40% can be achieved with the compositions of the invention as compared to typical levels of 15% for other products.

Detailed Description of the Invention

The stable, high efficacy, low residue cosmetic compositions of this invention are made by combining:

(a) 40-75% (particularly 45-60%, and, more particularly, 46-53%) of a volatile silicone (especially a D5 cyclomethicone);

(b) 1-20% (particularly 2-18% and, more particularly, 5-15%) of an emollient or a mixture of two or more emollients (for example, 0.1-5% (particularly 0.3-4.0%, more particularly 0.4-2.0% and even more particularly 0.4-1.5%) of a non-volatile silicone such as phenyltrimethicone; or 1-12% C12-15 alkyl benzoate);

(c) 0.5-20% (on a solids basis) (particularly 1-15% and more particularly 1-10%) of the cyclomethicone (and) dimethicone crosspolymer composition as described above;

(d) 0.1-20% (particularly10-20% to get an antiperspirant effect) of an antiperspirant active based on an anhydrous, buffer-free antiperspirant active;

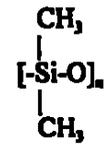
(e) 2-15% (particularly 2-10% and, more particularly, 2-8%) of polyethylene beads having a particle size in the range of 5-40 microns and a density in the range of 0.91-0.98 g/cm^3;

(f) 0-5% antimicrobial agent; and

(g) 0-5% fragrance;

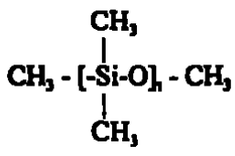
wherein all percents are in percents by weight based on the total weight of the composition unless otherwise indicated.

The silicone materials used in forming the compositions of the present invention may be selected from the group consisting of conventional cyclic and linear volatile and non-volatile silicones which act as a swelling agent for the suitable elastomer. Illustratively, and not by way of limitation, the volatile silicones are one or more members selected from the group consisting of cyclic polydimethylsiloxanes such as those represented by Formula I:



Formula I

where n is an integer with a value of 3-7, particularly 5-6. By volatile silicone material is meant a material that has a measurable vapor pressure at ambient temperature. For example, DC-245 fluid from Dow Corning Corporation (Midland, Michigan) is a type of cyclomethicone which can be used. These include a tetramer (or octylmethylcyclotetrasiloxane) and a pentamer (or decamethylcyclopentasiloxane). The nonvolatile and volatile linear silicones are one or more members selected from the group consisting of linear polydimethylsiloxanes such as those represented by Formula II:



Formula II

and t is selected so that the molecular weight ranges from 800-260,000 and the viscosity ranges from 5-600,000 centistokes, for example Dimethicone DC 200 from Dow Corning.

Emollients are a known class of materials in this art, imparting a soothing effect to the skin. These are ingredients which help to maintain the soft, smooth, and pliable appearance of the skin. Emollients are also known to reduce whitening on the skin and/or improve aesthetics. Examples of chemical classes from which suitable emollients can be found include:

(a) fats and oils which are the glyceryl esters of fatty acids, or triglycerides, normally found in animal and plant tissues, including those which have been hydrogenated to reduce or eliminate unsaturation. Also included are synthetically prepared esters of glycerin and fatty acids. Isolated and purified fatty acids can be esterified with glycerin to yield mono-, di-, and triglycerides. These are relatively pure fats which differ only slightly from the fats and oils found in nature. The general structure may be represented by Formula III:

Formula III

wherein each of R^1, R^2, and R^3 may be the same or different and have a carbon chain length (saturated or unsaturated) of 7 to 30. Specific examples include peanut oil, sesame oil, avocado oil, coconut, cocoa butter, almond oil, safflower oil, corn oil, cotton seed oil, castor oil, hydrogenated castor oil, olive oil, jojoba oil, cod liver oil, palm oil, soybean oil, wheat germ oil, linseed oil, and sunflower seed oil;

(b) hydrocarbons which are a group of compounds containing only carbon and hydrogen. These are derived from petrochemicals. Their structures can vary widely and include aliphatic, alicyclic and aromatic compounds. Specific examples include paraffin, petrolatum, hydrogenated polyisobutene, and mineral oil.

(c) esters which chemically, are the covalent compounds formed between acids and alcohols. Esters can be formed from almost all acids (carboxylic and inorganic) and any alcohol. Esters here are derived from carboxylic acids and an alcohol. The general structure would be $R^4CO\text{-}OR^5$. The chain length for R^4 and R^5 can vary from 7 to 30 and can be saturated or unsaturated, straight chained or branched. Specific examples include isopropyl myristate, isopropyl palmitate, isopropyl stearate, isopropyl isostearate, butyl stearate, octyl stearate, hexyl laurate, cetyl stearate, diisopropyl adipate, isodecyl oleate, diisopropyl sebacate, isostearyl lactate, $C_{12\text{-}15}$ alkyl benzoates, myreth-3 myristate, dioctyl malate, neopentyl glycol diheptanoate, neopentyl glycol dioctanoate, dipropylene glycol dibenzoate, $C_{12\text{-}15}$ alcohols lactate, isohexyl decanoate, isohexyl caprate, diethylene glycol dioctanoate, octyl isononanoate, isodecyl octanoate, diethylene glycol diisononanoate, isononyl isononanoate, isostearyl isostearate, behenyl behenate, $C_{12\text{-}15}$ alkyl fumarate, laureth-2 benzoate, propylene glycol isoceteth-3 acetate, propylene glycol ceteth-3 acetate, octyldodecyl myristate, cetyl ricinoleate, myristyl myristate.

(d) saturated and unsaturated fatty acids which are the carboxylic acids obtained by hydrolysis of animal or vegetable fats and oils. These have general structure R^6COOH with the R^6 group having a carbon chain length between 7 and 30 , straight chain or branched. Specific examples include lauric, myristic, palmitic, stearic, oleic, linoleic and behenic acid.

(e) saturated and unsaturated fatty alcohols (including guerbet alcohols) with general structure R^7COH where R^7 can be straight or branched and have carbon length of 7 to 30. Specific examples include lauryl, myristyl, cetyl, isocetyl, stearyl, isostearyl, oleyl, ricinoleyl and erucyl alcohol;

(f) lanolin and its derivatives which are a complex esterified mixture of high molecular weight esters of (hydroxylated) fatty acids with aliphatic and alicyclic alcohols and sterols. General structures would include $R^8CH_2\text{-}(OCH_2CH_2)_nOH$ where R^8 represents the fatty groups derived from lanolin and n=5 to 75 or $R^9CO\text{-}$

$(OCH_2CH_2)_nOH$ where R^5CO- represents the fatty acids derived from lanolin and n=5 to 100. Specific examples include lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin and acetylated lanolin alcohols.

(g) alkoxylated alcohols wherein the alcohol portion is selected from aliphatic alcohols having 2-18 and more particularly 4-18 carbons, and the alkylene portion is selected from the group consisting of ethylene oxide, and propylene oxide having a number of alkylene oxide units from 2-53 and, more particularly, from 2-15. Specific examples include PPG-14 butyl ether, PPG-53 butyl ether, and PPG-3 myristyl ether.

(h) silicones and silanes which are organo-substituted polysiloxanes which are selected from polymers of silicon/oxygen having general structures:

(1) $(R^{10})_3SiO(Si(R^{11})_2O)_nSi(R^{12})_3$ where R^{10}, R^{11} and R^{12} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl;

(2) $HO(R^{14})_2SiO(Si(R^{15})_2O)_nSi(R^{16})_2OH$, where R^{14}, R^{15} and R^{16} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl; or

(3) organo substituted silicon compounds of formula $R^{17}Si(R^{18})OSiR^{19}$ which are not polymeric where R^{17}, R^{18} and R^{19} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl optionally with one or both of the terminal R groups also containing an hydroxyl group. Specific examples include dimethicone (for example, dimethicone having a viscosity of 0.5-1.5 centistokes), dimethiconol behenate, C_{30-45} alkyl methicone, stearoxytrimethylsilane, phenyl trimethicone and stearyl dimethicone.

(i) mixtures and blends of two or more of the foregoing.

Emollients of special interest include C12-15 alkyl benzoate (FINSOLV TN from Finetex Inc., Elmwood Park, NJ); phenyltrimethicone, isopropyl myristate; and neopentyl glycol diheptanoate.

The emollient or emollient mixture or blend thereof incorporated in compositions according to the present invention can, illustratively, be included in amounts of 0.5 - 50 %, preferably 1 - 25 %, more preferably 3 - 12 %, by weight, of the total weight of the composition.

One particular elastomer of interest is DC-9040 from Dow Corning Corporation.

The antiperspirant active can be selected from the group consisting of any of the known antiperspirant active materials. These include, by way of example (and not of a limiting nature), aluminum chlorohydrate, aluminum chloride, aluminum sesquichlorohydrate, zirconyl hydroxychloride, aluminum-zirconium glycine complex (for example, aluminum zirconium trichlorohydrex gly, aluminum zirconium pentachlorohydrex gly, aluminum zirconium tetrachlorohydrex gly and aluminum zirconium octochlorohydrex gly), aluminum chlorohydrex PG, aluminum chlorohydrex PEG, aluminum dichlorohydrex PG, and aluminum dichlorohydrex PEG. The aluminum-containing materials can be commonly referred to as antiperspirant active aluminum salts. Generally, the foregoing metal antiperspirant active materials are antiperspirant active metal salts. In the embodiments which are antiperspirant compositions according to the present invention, such compositions need not include aluminum-containing metal salts, and can include other antiperspirant active materials, including other antiperspirant active metal salts. Generally, Category I active antiperspirant ingredients listed in the Food and Drug Administration's Monograph on antiperspirant drugs for over-the-counter human use can be used. In addition, any new drug, not listed in the Monograph, such as aluminum nitratohydrate and its combination with zirconyl hydroxychlorides and nitrides, or aluminum-stannous chlorohydrates, can

be incorporated as an antiperspirant active ingredient in antiperspirant compositions according to the present invention.

Particular types of antiperspirant actives include aluminum zirconium trichlorohydrex and aluminum zirconium tetrachlorohydrex either with or without glycine. A particular antiperspirant active is aluminum trichlorohydrex gly such as AZZ-902 SUF (from Reheis Inc., Berkley Heights, NJ); Westchlor 30BDM XF (from Westwood Chemical Co., Middletown, NY). Particular tetrachlorohydrex salts include AZP 902 SUF from Reheis and Westchlor 35BDM XF from Westwood. Any of these salts can be processed to obtain 98% of the particles less than 10 microns in size; 95% of the particles less than 10 microns in size; 90% of the particles less than 10 microns in size; or 85% of the particles less than 10 microns in size.

Antiperspirant actives can be incorporated into compositions according to the present invention in amounts in the range of 0.1 – 25% of the final composition, but the amount used will depend on the formulation of the composition. For example, at amounts in the lower end of the broader range (for example, 0.1 - 10% on an actives basis), a deodorant effect may be observed. At lower levels the antiperspirant active material will not substantially reduce the flow of perspiration, but will reduce malodor, for example, by acting as an antimicrobial material. At amounts of 10-25% (on an actives basis) such as 15 - 25%, by weight, of the total weight of the composition, an antiperspirant effect may be observed.

The antiperspirant active material is desirably included as particulate matter suspended in the composition of the present invention in amounts as described above, but can also be added as solutions or added directly to the mixture.

The polyethylene beads useful with this invention have a density in the range of 0.91-0.98 g/cm^3 and a particle size in the range of 5-40 microns, with one particular type of polyethylene having a particle size of 20 microns. All particle sizes are averages. Several types of suitable polyethylene beads that are commercially available are MICROTHENE FN 510 from Equistar Chemicals LP (Houston, Texas); ACUMIST

A-6 from Allied Signal Corp., Morristown, NJ).), and Performalene™ (New Phase Technology, Piscataway, NJ). The polyethylene component contributes to the reduction in syneresis and is also responsible for giving the products a powdery feel as determined by trained sensory panels.

Suitable antimicrobial agents include, for example, bacteriostatic quaternary ammonium compounds such as 2-amino-2-methyl-1-propanol (AMP), cetyl-trimethylammonium bromide, cetyl pyridinium chloride, 2, 4, 4'-trichloro-2'-hydroxydiphenylether (Triclosan), N-(4-chlorophenyl)-N'-(3,4-dichlorophenyl)urea (Triclocarban), silver halides, octoxyglycerin (Sensiva™ SC 50) and various zinc salts (for example, zinc ricinoleate). The bacteriostat can, illustratively, be included in the composition in an amount of 0-5%, particularly 0.01-1.0% by weight, of the total weight of the composition. Triclosan, can illustratively be included in an amount of from 0.05% to about 0.5% by weight, of the total weight of the composition.

A variety of fragrances can be used in these compositions if a scented products is desired. Fragrances can be used in an amount in the range of 0-5%, particularly 0.01--2.0%, and, for example, at a level of 1%.

Masking agents can be used in an amount of 0.05-5.0% (particularly 0.05-2%) by weight based on the total weight of the composition if an unscented product is desired.

Other various optional components include those described in U.S. Patents Numbers 5,019,375 to Tanner et al; 4,937,069 to Shin; and 5,102,656, each of which is incorporated by reference in its entirety herein. Examples of such additional ingredients include fragrances, coloring agents, soothing agents (such as aloe and its derivatives), opacificers, etc. in types and amounts conventionally used for such products, some of which have already been described above.

These compositions are soft solids made as suspensions and thickened or gelled to obtain the desired viscosity. Viscosity may be modified by using various types and amounts of (1) elastomer; (2) antiperspirant active (for example, selected on the basis of

physical properties such as particle size, surface area, moisture content, loss on drying and/or oil adsorption); (3) polyethylene beads (for example, selected on the basis of physical properties such as particle size, surface area, etc.). Viscosity may also be varied by using processing techniques on the final product such as homogenization. The optimum viscosity will depend on the type of packaging used as the delivery system and the size of the openings. A viscosity will be selected to give the appropriate payout under normally exerted pressure and still minimize leakage. While thickening may be achieved in several ways, the compositions of this invention will normally use the elastomer component as the gellant. Of course various viscosities for a soft solid may be made depending on the amount of elastomer material and the amount of other ingredients used. One group of products having a more viscous form will have a viscosity in the range of 50,000-2,500,000 (particularly 50,000 – 1,000,000 centipoise) and will be suitable for use with an applicator with porous openings or slots such as those described in USSN 9/191,897 (PCT 99/25570) incorporated by reference herein as to the description of the applicators. Another form will have a lower viscosity such as in the range of 20,000-200,000 centipoise and will be suitable for use with applicators requiring a thinner composition, for example roll-on applicators which have a rolling ball structure. For example, such roll-on applicators are described in U.S. Patents Numbers 5,158,385 and 4,984,921. incorporated by reference herein as to the description of the applicators.

While various forms have been described, it is believed that the compositions made according to this inventions should preferably have a ratio of elastomer to antiperspirant active in the range of 1:2-1:20 in order to achieve the optimum improved efficacy and the improved stability that has been observed.

Compositions according to the present invention can be made by mixing the silicone gel material with active ingredient(s) and optionally one or more of emollient(s), thickener(s) and fragrance. Mixing conditions and the use of heating will depend on what types of materials are being combined and the melting points for those

materials as are known to those skilled in the art. For example if soft solids, roll-ons or gels are being made, temperatures, in the range of room temperature or slightly higher (for example, 25-50 degrees C, particularly 23-30 degrees C) may be used. For stick products and soft solid/cream products made with higher melting point materials (for example, high temperature waxes) temperatures from 25-85 degrees C may be used. The mixture can be introduced into dispensing containers known to those skilled in the art including those for solids, gels, roll-ons, soft solids and creams. In one particular example, slotted dispensers may be used such as those known in the art, for example, those having a parallel row or rows of straight or curved slots or holes with a screw mechanism for forcing the composition through the top as the product is used.

Where the dispensing containers have a top surface with slots therein, the composition can be rubbed onto the skin from the top surface of the container (itself fed from a reservoir of product in the container) so as to deposit an adequate amount of the cosmetic composition on to the skin. The cosmetic composition, for example, an antiperspirant and/or deodorant in the form of a soft solid, can be extruded from inside the dispensing container through the slots or holes onto the top of the surface of the dispensing container, and from there may be applied to the skin in the axillary regions to deposit sufficient amounts of antiperspirant and/or deodorant active material to reduce body malodor and/or reduce perspiration in axillary regions of the human body.

Various forms of the invention can be exemplified by the following formulations but should not be construed as limitations on the invention:

<u>Soft Solid</u>

(a) 1-20% of a volatile silicone such as D4 or D5 cyclomethicone (or mixtures thereof);

(b) 1-20% of an emollient component comprising 0-12% (particularly 1-8%) of FINSOLV TN C12-15 alkyl benzoate; 0-8% (particularly 0.5-5%) neopentyl glycol diheptanoate; 0-2% (particularly 0.5-2%) isopropyl myristate; 0-1.5% (particularly 0.4-1.5%) of a non-volatile silicone such as phenyltrimethicone;

(c) 40-60% elastomer composition in cyclomethicone (for example, DC-9040);

(d) 15-25% antiperspirant active;

(e) 3-10% polyethylene beads of the type described above; and

(f) optionally 0.5-1.5% fragrance.

EXAMPLES

The following Examples are offered as illustrative of the invention and are not to be construed as limitations thereon. In the Examples and elsewhere in the description of the invention, chemical symbols and terminology have their usual and customary meanings. In the Examples as elsewhere in this application (a) values for n, m, etc. in formulas, molecular weights and degree of ethoxylation or propoxylation are averages; (b) temperatures are in degrees C unless otherwise indicated; and (c) the amounts of the components are in weight percents based on the standard described; if no other standard is described then the total weight of the composition is to be inferred. Various names of chemical components include those listed in the CTFA International Cosmetic Ingredient Dictionary (Cosmetics, Toiletry and Fragrance Association, Inc., 7th ed. 1997). Mixing techniques used to make the compositions are those conventionally used in the art including those described above.

Example 1: General Method #1 of Making Compositions

The solvent components such as the volatile silicone (for example, cyclomethicone), emollients (such as non-volatile silicone (for example, phenyltrimethicone), C12-15 alkyl benzoate, neopentyl glycol diheptanoate and isopropyl myristate) are added to a large capacity mixer equipped with a mechanical stirrer and blended for about 5 minutes or until a homogeneous dispersion is formed. The antiperspirant active is then added as a dry powder with continuous mixing followed by the polyethylene beads. The entire mixture is mixed for about 20 minutes or until a homogeneous dispersion is formed. The sides of the mixing vessel are scraped with a spatula of sufficient size to free solid chunks of particulates. The

elastomer is then added and blending is continued for about 20 minutes or until a homogeneous white creamy paste is formed. If fragrance is added it is done so at this point and mixed until well blended or for about 5 minutes. The resulting soft solid is then passed through a homogenizer (KINEMATIC homogenizer) and placed back into the reaction vessel. Multiple passes through the homogenizer are used (usually about 1-4) until the product is stable, that is, exhibits a syneresis of less than 8%, and preferably less than 5% as evaluated by the process described in Example 5, below. The final product may be placed in suitable packaging with openings that accommodate the viscosity of the final product. The entire process may be done without the application of any additional heat. If, however, a component is used which requires melting, the premelting of this component will be required.

Example 2: General Method #2 of Making Compositions

The elastomer composition is weighed out in a stainless steel container, which container is part of a Hobart Mixer (Model N-50, from Hobart Corporation, Troy, OH). The cyclomethicone, dimethicone, neopentyl glycol diheptanoate, diethyl phthalate and isopropyl myristate are weighed separately and added sequentially to the same container as the elastomer. The ingredients are blended for about 5 minutes or until a homogeneous mixture is formed. The antiperspirant active is then slowly added while mixing is continued. Mixing is then continued for an additional 10 minutes. Next the polyethylene powder is added slowly with mixing. After the addition is completed, mixing is continued for an additional 10 minutes. If fragrance is used it is added at this point and mixing is continued for an additional 5 minutes. The soft solid product is then transferred to suitable containers. This process may be done without the use of any added heat.

Example 3: General Method #3 of Making Compositions

The solvent components such as the volatile silicone (for example, cyclomethicone), emollients (such as non-volatile silicone (for example, phenyltrimethicone), C12-15 alkyl benzoate, neopentyl glycol diheptanoate and

isopropyl myristate) are added to a large capacity mixer equipped with a mechanical stirrer and blended for about 5 minutes or until a homogeneous dispersion is formed. The antiperspirant active is then added as a dry powder with continuous mixing. This mixture is mixed for about 20 minutes or until a homogeneous dispersion is formed. The elastomer is then added and mixing is continued for about 10 minutes or until a homogeneous, white creamy paste is formed. At this point, the polyethylene beads are added and mixing is continued for another 20 minutes. If fragrance is to be added, it is done at this point and mixed until well blended or for about 5 minutes. The resulting soft solid is then pumped through a homogenizer (KINEMATIC – MT 61 Megatron unit homogenizer). Multiple passes through the homogenizer are used (usually about 1-4). It has been shown through experimentation that 4 passes is optimal for the stability of the final product to separation/syncresis. At 1-4 passes the product exhibits a syneresis of less than 8%, preferably less than 5% as evaluated by the process described in Example 5, below. The final product may be placed in suitable containers. No heating steps are required by this process. If, however, a component is used which requires melting, the premelting of this component will be required.

Example 4: General Method #4 of Making Compositions

When the elastomer content is in the low range of the composition and the fluids are of a percentage in the range of 18-23% by weight based on the total weight of the composition, the following process can be used. The cyclomethicone, dimethicone, neopentyl glycol diheptanoate, diethyl phthalate and isopropyl myristate are weighed separately and added sequentially to a properly sized stainless steel container. The ingredients are blended for about 5 minutes or until a homogeneous mixture is formed. The antiperspirant active is then slowly added while mixing is continued. Mixing can be done by an axial flow impeller with adequate power. Mixing is then continued for an additional 10 minutes. Next the polyethylene powder is added slowly with continued mixing. After the addition is completed, mixing is continued for an additional 10 minutes. This mixture is called the active phase. It is then added to a

scraped wall mixing vessel with counter rotating blades (Lee, Agi or similar type) into which the formula amount of elastomer has already been charged. This is mixed for 20 minutes. If fragrance is used it is added at this point and mixing is continued for an additional 5 minutes. The soft solid product is then homogenized as described in Example 3. The product may then be transferred to suitable containers. This process may be done without the use of any added heat.

Example 5: Stability Evaluation

Samples (10.0g) of formulated product are placed in a 25 cm^3 vial. The sample is incubated at a temperature of 50 degrees C. for 3 days and then centrifuged for 20 minutes at speed of 3900 rpm on a Centra CL2 centrifuge (from International Equipment Co., Needham Heights, MA). Any liquid remaining on top of the product sample was removed with a pipette and weighed. Percent syneresis is calculated as :

(weight of liquid removed after centrifugation) X 100/10.0

Normally it was desired to obtain syneresis levels of less than 8% and preferably less than 5% as described above. By way of comparison, the percent syneresis of a commercially available soft solid (Secret® Platinum powder fresh scent soft solid, a wax based product containing19% aluminum zirconium trichlorohydrex gly (anhydrous), cyclopentasiloxane, dimethicone, tribehenin, C18-36 acid triglyceride and fragrance) exhibited a percent syneresis of about 19.79%.

Examples 6K, 6-K1, 6-N, and 6-O

The method described in Example 2 was done with the amounts of ingredients listed in TABLE A. The percent syneresis was measured by the method described in Example 5.

TABLE A

Ingredient	Ex. 6K	Ex. 6-K1	Ex. 6-N	Ex. 6-O
Cyclomethicone and dimethicone crosspolymer (DC 9040)	500.0g (50.00%)	250.00g (50.00%)	250.00g (50.00%)	260.00g (52.00%)
Antiperspirant active (AZZ-902 SUF)	250.0g (25.00%)	125.00g (25.00%)	125.00g (25.00%)	125.00g (25.00%)
Neopentyl glycol diheptanoate	0	25.00g (5.00%)	50.00g (10.00%)	25.00g (5.00%)
Cyclomethicone (DC-245)	95.0g (9.50%)	22.50g (4.50%)	0	22.50g (4.50%)
Diethyl phthalate	10.0g (1%)	5.00g (1.00%)	5.00g (1.00%)	5.00g (1.00%)
Isopropyl myristate	25.0g (2.50%)	12.50g (2.50%)	12.50g (2.50%)	12.50g (2.50%)
Dimethicone DC-200 (1.5 centistokes)	20.0g (2.00%)	10.00g (2.00%)	10.00g (2.00%)	10.00g (2.00%)
Polyethylene (MICROTHENE FN 510)	100.0g (10.00%)	45.00g (9.00%)	42.50g (8.50%)	35.00g (7.00%)
Fragrance	0	5.00g (1.00%)	5.00g (1.00%)	5.00g (1.00%)
Total	1000g (100%)	500.00g (100%)	500.00g (100%)	500.00g (100%)
% Syneresis	1.53	1.99	1.38	3.72

Examples 6-P, 6-Q and 6-R

The method described in Example 2 was done with the amounts of ingredients listed in TABLE B. The percent syneresis was measured by the method described in Example 5.

TABLE B

Ingredient	Ex. 6-P	Ex. 6-Q	Ex. 6-R
Cyclomethicone and dimethicone crosspolymer (DC –9040)	250.00g (50.00%)	250.00g (50.00%)	250.00g (50.00%)
Antiperspirant active (AZZ-902 SUF)	125.00g (25.00%)	125.00g (25.00%)	125.00g (25.00%)
Neopentyl glycol diheptanoate	25.00g (5.00%)	25.00g (5.00%)	25.00g (5.00%)
Cyclomethicone (DC-245)	27.50g (5.50%)	35.00g (7.00%)	32.50g (6.50)
Diethyl phthalate	0	5.00g (1.00%)	5.00g (1.00%)
Isopropyl myristate	12.50g (2.50%)	0	12.50g (2.50%)
Dimethicone DC- 200 (1.5 centistokes)	10.00g (2.00%)	10.00g (2.00%)	0
Polyethylene (MICROTHENE FN 510)	45.00g (9.00%)	45.00g (9.00%)	45.00g (9.00%)
Fragrance	5.00g (1.00%)	5.00g (1.00%)	5.00g (1.00%)
Total	500.00g (100%)	500.00g (100%)	500.00g (100%)
% Syneresis	3.15	4.16	3.75

Examples 10- 15

Examples of the invention may be made by using the method described in Example 3 with the amounts of ingredients listed in TABLE C. Note that for the elastomers, Crosspolymer A is a DC-9040 material obtained commercially and Crosspolymer B is a similar material which has been processed to a lower viscosity (75,000-250,000 cps) and a non-volatiles content of 9-12%).

TABLE C

Ingredients (% by wt.)	Ex. 10	Ex. 11	Ex. 12	Ex.13	Ex.14	Ex.15
Neopentyl glycol diheptanoate	3.00	3.00	3.00	3.00	1.00	1.00
Cyclomethicone (DC-245)	11.00	8.00	8.00	8.00	11.00	10.00
Phenyl trimethicone (DC 556)	1.00	1.00	1.00	1.00	1.00	1.00
Isopropyl myristate	1.00	1.00	1.00	1.00		1.00
C12-15 alkyl benzoate	5.00	5.00	5.00	5.00	5.00	5.00
AlZr trichlorohydrex gly (Reach AZZ 902 SUF)	25.00	25.00	25.00	25.00	25.00	25.00
Polyethylene (Microthene FN 510)	6.00	6.00	6.00	6.00	6.00	6.00

Cyclomethicone and dimethicone crosspolymer ("A")	47.00	10.00	7.50	5.00	10.00	10.00
Cyclomethicone and dimethicone crosspolymer ("B")		40.00	42.50	45.00	40.00	40.00
Fragrance	1.00	1.00	1.00	1.00	1.00	1.00
Total	100.00	100.00	100.00	100.00	100.00	100.00

Examples 16- 20

Examples of the invention may be made by using the method described in Example 3 with the amounts of ingredients listed in TABLE D. Note that for the elastomers, DC-9040 material obtained commercially is used.

TABLE D

Ingredients (% by wt.)	Ex.16	Ex.17	Ex.18	Ex.19	Ex.20
Neopentyl glycol diheptanoate	1.00	3.00	1.00	1.00	3.00
Cyclomethicone (DC-245)	9.75	5.50	5.50	7.50	11.00
Phenyl trimethicone (DC 556)	1.00	1.00	1.00	1.00	1.00
Isopropyl myristate	1.00	1.00	1.00	1.00	1.00
C12-15 alkyl benzoate	5.00	5.00	7.00	5.00	5.00
AlZr trichlorohydrex gly (Reach AZZ 902 SUF)	25.00	25.00	25.00	25.00	25.00
Polyethylene (Microthene FN 510)	8.00	8.00	8.00	8.00	8.00
Cyclomethicone and dimethicone crosspolymer	50.00	52.50	52.50	52.50	47.00
Aloe Vera, Powder (Veragel 200 standardized)	0.05				
Fragrance	1.20	1.00	1.00	1.00	1.00
Total	100.00	100.00	100.00	100.00	100.00

Examples 21- 24

Examples of the invention may be made by using the method described in Example 3 with the amounts of ingredients listed in TABLE E. Note that for the elastomers, DC-9040 material obtained commercially is used.

TABLE E

Ingredients (% by wt.)	Ex.21	Ex.22	Ex.23	Ex.24
Neopentyl glycol diheptanoate			1.00	0.50
Cyclomethicone (DC-245)	8.25	5.25	5.25	6.75
Phenyl trimethicone (DC 556)			1.00	0.50
Isopropyl myristate			1.00	0.50
C12-15 alkyl benzoate	7.00	7.00	7.00	7.00
PPG-3 myristyl ether		3.00		
AlZr trichlorohydrex gly (Reach AZZ 902 SUF)	25.00	25.00	25.00	25.00
Polyethylene (Microthene FN 510)	6.00	6.00	6.00	6.00
Cyclomethicone and dimethicone crosspolymer	52.50	52.50	52.50	52.50
Aloe Vera, Powder (Veragel 200 standardized)	0.05	0.05	0.05	0.05
Fragrance	1.20	1.20	1.20	1.20
Total	100.00	100.00	100.00	100.00

Claims

We Claim:

1. A low residue antiperspirant and/or deodorant compositions comprising:

(a) 40-75% of a volatile silicone;

(b) 1-20% of an emollient which may be a single emollient or a mixture of emollients;

(c) 0.5-20% on a solids basis a cyclomethicone (and) dimethicone crosspolymer made with an ≡Si-H containing polysiloxane and an alpha, omega-diene of formula CH_2=CH(CH_2)$_x$CH=CH_2 , where x=1-20, to form a gel by crosslinking and addition of ≡Si-H across double bonds in the alpha, omega diene, which crosspolymer has a viscosity in the range of 50,000-3,000,000 centipoise and a nonvolatiles content of 8-18% in cyclomethicone;

(d) 0.1-20% of an antiperspirant active based on an anhydrous, buffer-free basis;

(e) 2-15% of polyethylene beads having a particle size in the range of 5-40 microns and a density in the range of 0.91-0.98 g/cm^3;

(f) 0-5% antimicrobial agent; and

(g) 0-5% fragrance;

wherein all percents are in percents by weight based on the total weight of the composition unless otherwise indicated.

2. An antiperspirant and/or deodorant composition according to Claim 1 comprising 45-60% of a volatile silicone.

3. An antiperspirant and/or deodorant composition according to Claim 1 or 2 wherein the volatile silicone is cyclomethicone.

4. An antiperspirant and/or deodorant composition according to Claim 1 comprising 2-18% of an emollient wherein the emollient comprises one or more members selected from the group consisting of

(a) fats and oils which are the glyceryl esters of fatty acids or triglycerides of Formula III:

$$\begin{array}{l} CH_2\text{-}COOR^1 \\ | \\ CH\text{-}COOR^2 \\ | \\ CH_2\text{-}COOR^3 \end{array}$$

Formula III

wherein each of R^1, R^2, and R^3 may be the same or different and have a carbon chain length (saturated or unsaturated) of 7 to 30;

(b) hydrocarbons;

(c) esters of formula $R^4CO\text{-}OR^5$, wherein the chain length for each of R^4 and R^5 is from 7 to 30 and can be saturated or unsaturated, straight chained or branched;

(d) saturated and unsaturated fatty acids having a formula R^6COOH wherein R^6 has a carbon chain between 7-30 and can be straight or branched chain;

(e) saturated and unsaturated fatty alcohols having a formula R^7COH wherein R^7 has a carbon chain between 7-30 and can be straight or branched chain;

(f) lanolin and its derivatives;

(g) alkoxyated alcohols wherein the alcohol portion is selected from aliphatic alcohols having 2-18 and more particularly 4-18 carbons, and the alkylene portion is selected from the group consisting of ethylene oxide, and propylene oxide having a number of alkylene oxide units from 2-53;

(h) silicones and silanes which are members of the group consisting of polymers of silicon/oxygen having general structures:

(1) $(R^{10})_3SiO(Si(R^{11})_2O)_xSi(R^{12})_3$ where R^{10}, R^{11} and R^{12} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl;

(2) $HO(R^{14})_2SiO(Si(R^{15})_2O)_xSi(R^{16})_2OH$, where R^{14}, R^{15} and R^{16} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl; or

(3) organo substituted silicon compounds of formula $R^{17}Si(R^{18})OSiR^{19}$ which are not polymeric where R^{17}, R^{18} and R^{19} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl optionally with one or both of the terminal R groups also containing an hydroxyl group; and

(i) mixtures and blends of two or more of (a)-(h).

5. An antiperspirant and/or deodorant composition according to Claim 4 wherein the emollient is one or more members selected from the group consisting of dimethicone, dimethiconol behenate, C_{30-45} alkyl methicone, stearoxytrimethylsilane, phenyl trimethicone and stearyl dimethicone.

6. An antiperspirant and/or deodorant composition according to Claim 1 comprising 1-15% of the cyclomethicone (and) dimethicone crosspolymer.

7. An antiperspirant and/or deodorant composition according to Claim 1 comprising 10-20% of an antiperspirant active.

8. An antiperspirant and/or deodorant composition according to Claim 1 comprising particularly 2-10% of polyethylene beads.

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9. An antiperspirant/deodorant composition according to Claim 1 which is made as a soft solid and which comprises:

(a) 1-20% of cyclomethicone;

(b) 1-20% of an emollient component comprising 1-8% of C12-15 alkyl benzoate; 0.5-5% neopentyl glycol diheptanoate; 0.5-2% isopropyl myristate; 0.4-1.5% of phenyltrimethicone;

(c) 40-60% cyclomethicone (and) dimethicone crosspolymer in cyclomethicone;

(d) 15-25% antiperspirant active;

(e) 3-10% polyethylene beads; and

(f) optionally 0.5-1.5% fragrance.

ABSTRACT

A low residue, stable antiperspirant and/or deodorant composition is disclosed which is made by combining: (a) a cyclomethicone (and) dimethicone crosspolymer made with an ≡Si-H containing polysiloxane and an alpha, omega-diene of formula $CH_2=CH(CH_2)_xCH=CH_2$ which crosspolymer has a viscosity in the range of 50,000-3,000,000 centipoise, preferably with a nonvolatiles content of 8-18% in cyclomethicone; (b) polyethylene beads having a density in the range of 0.91-0.98 grams/cm^3 and a particle size in the range of 5-40 microns; (c) a volatile silicone; (d) an emollient (or a mixture of two or more emollients) which may include a non-volatile silicone and an additional amount of a volatile silicone; and (e) an effective amount of an antiperspirant active material in an amount sufficient to have an antiperspirant and/or a deodorant effect.

Ir6449-01

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DECLARATION AND POWER OF ATTORNEY
PATENT APPLICATION

COLGATE-PALMOLIVE COMPANY Docket No. IR 6449 - 01

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name; and
I believe I am an original, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

EFFECTIVE SOFT SOLID PERSONAL CARE PRODUCT

the specification of which was filed on 9/28/2000 via Express Mail No. EL424693695US.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination and patentability of this application in accordance with 37 CFR 1.56(a).

I hereby claim foreign priority benefits under 35 U.S.C. 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)			
NUMBER	COUNTRY	DAY/MONTH/YEAR FILED	PRIORITY CLAIMED

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 CFR 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION SERIAL NO.	FILING DATE	STATUS-PATENTED, PENDING, ABANDONED

I hereby claim the benefit under 35 USC §119 (e) of any United States provisional application(s) listed below.

60/194,462 4/4/2000
(Application Number) (Filing Date)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorneys or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: James M. Serafino, Reg. No. 29,346; Richard J. Ancel, Reg. No. 26,438; Martin B. Barancik, Reg. No. 25,189; Bernard Lieberman, Reg. No. 26,194; Michael J. McGreal, Reg. No. 25,356; Richard E. Nanfeldt, Reg. No. 27,050; Paul Shapiro, Reg. No. 22,322; Robert L. Stone, Reg. No. 22,272; Henry S. Goldfine, Reg. No. 38,468 and Rosemary M. Miano, Reg. No. 29,674 of Colgate-Palmolive Company, 909 River Road, P.O. Box 1343, Piscataway, New Jersey 08855-1343.

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88

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89.075

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PA 386211

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

April 19, 2001

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: ***60/194,462***
FILING DATE: ***April 04, 2000***

By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

L. Wallace
T. WALLACE
Certifying Officer

4-5-00 A/PRO

CERTIFICATE OF EXPRESS MAILING

I hereby certify that this document and all its noted attachments listed below are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231 Via Express Mail Label EL424690076US on Apr. 4, 2000

Signature Rosemary Miano Reg. #29,674 Apr. 4, 2000 Date

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (b)(2).

Docket Number: IR6449	Type a plus sign (+) inside this box +

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TITLE OF THE INVENTION (280 characters max)

Effective Soft Solid Personal Care Product

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Respectfully submitted,

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Effective Soft Solid Personal Care Product

Field of the Invention

This invention relates to soft solid products made as suspensions and suitable for use as antiperspirants and/or deodorants.

Background of the Invention

There is a continuing trend to develop new and superior cosmetic compositions especially for the reduction and/or elimination of wetness and/or odor under the arms. Particular efforts include developing lower residue products especially with improved efficacy and aesthetics. Various product forms have included sticks (especially gel/sticks), gels, soft solids, roll-ons, aerosols and creams. Of these various forms the sticks, gels, soft solids creams and roll-ons are made with a liquid base material incorporating a solidifying agent and/or gelling agent and/or thickening agent. Generally, these forms include a solution of the cosmetically active ingredient in a suitable vehicle, a suspension of the active ingredient in a carrier vehicle, or a multiphasic dispersion or emulsion in which a solution of the active ingredient is dispersed or suspended in some continuous phase or in which the solubilized active ingredient constitutes the continuous phase.

A variety of soft-solid formulations are known. These include formulations made with the following ingredients:

(a) clay thickening agent and an activator for the clay: for example, U.S. Patent Number 5,019,375 to Tanner et al; and U.S. Patent Number 4,526,780 to Marschner et al;

(b) particulate thickening agents such as fumed silica: for example, U.S. Patent Number 5,069,897 to Orr; and U. S. Patent Number 4,937,069 to Shin;

(c) selected volatile and/or non-volatile alkylmethylsiloxanes such as those including a structuring wax: for example, U.S. Patent Number 5,225,188 to Abrutyn et

al; and PCT applications WO 97/16161 and 16162 both of which are assigned to Unilever PLC; and

(d) triglyceride gellants such as the glyceryl tribehenate described in U.S. Patent Number 5,718,890 to Putnam et al.

The use of a class of compositions known as silicone elastomers in cosmetic compositions has shown some interesting results. PCT case WO 97/44010 and assigned to the same assignee as this application describes a silicone gel material made by combining (a) a volatile silicone material and (b) an organopolysiloxane material (or silicone elastomer) as a gelling agent wherein the organopolysiloxane material (silicone elastomer) can be a reaction product of a vinyl-terminated siloxane polymer and a silicon hydride cross-linking agent. Related technology is also disclosed in PCT case WO 98/00097, WO 98/00104 and 98/00105 assigned to Unilever PLC on cross-linked non-emulsifying elastomers.

U.S. Patent 5,599,533 to Stepniewski et al assigned to Estee Lauder describes a stable water-in-oil emulsion system formed with an organopolysiloxane elastomer, a vehicle in which the elastomer is dispersed or dispersible, a stabilizing agent , a surfactant and an aqueous component. A commercial product known as "REVELATION" retexturizing complex for hands and chest sold by the same assignee contains a silicone gel material with an organopolysiloxane component and octamethylcyclotetrasiloxane.

EP 0 787 758 A1 teaches a method for solvent thickening by using a silicone latex having a plurality of crosslinked polysiloxane particles.

Another recent case assigned to the same assignee as this application is WO 99/51192 and U.S. Patent Application Serial Number 9/273152 which describes antiperspirant compositions with the use of broad categories of elastomers. Other examples of the use of elastomer type materials and/ or methods for processing such materials may be found in PCT cases WO 98/00097; WO 98/00104; WO 98/00105; WO 98/18438; WO 98/42307 all of which are incorporated herein by reference.

Two major problems have been observed when the use of elastomer materials is included in soft solid formulations. The first problem is reduction in efficacy due to the formation of an occlusive elastomeric film which prevents the active from diffusing into the sweat duct. The second problem is the consistency of the product as evidenced by high viscosity and elastic behavior when applied to the surface of the skin. In order to reduce this high viscosity, emollients and solvents have to be added which may negatively impact efficacy of the deodorant and/or antiperspirant. It has been found that the use of a selected type of elastomer in soft solid formulations in combination with polyethylene beads as described herein overcomes these problems.

Thus, it is an object of the invention to provide improved cosmetic compositions with the improvements as previously described and which are useful as antiperspirants and/or deodorants. These and other objects of the invention will be apparent from the following description of the invention.

Summary of the Invention

It has been found that an improved soft solid cosmetic product may be made as a suspension formed with:

(a) a cyclomethicone (and) dimethicone crosspolymer made with an ≡Si-H containing polysiloxane and an alpha, omega-diene of formula CH_2=$CH(CH_2)_xCH$=CH_2 ,where x=1-20, to form a gel by crosslinking and addition of ≡Si-H across double bonds in the alpha, omega diene, which crosspolymer has a viscosity in the range of 250,000-450,000 centipoise (particularly 350,000 centipoise), preferably with a nonvolatiles content of 12-13% in cyclomethicone (for example a D4 or D5 cyclomethicone), (an example of such a crosspolymer composition being DC-9040 from Dow Corning Corporation (Midland, MI) with other types of such crosspolymers (also called elastomers) being described in U.S. Patent 5,654,362, incorporated by reference herein as to the description of such polymers and methods of making such polymers);

(b) polyethylene beads having a density in the range of 0.91-0.98 grams/cm^3 and a particle size in the range of 5-40 microns, wherein the polyethylene beads are used in an amount of at least 2% by weight based on the total weight of the composition;

(c) a volatile silicone;

(d) a non-volatile silicone;

(e) and emollient (or a mixture of two or more emollients); and

(f) an effective amount of an antiperspirant active material in an amount sufficient to have an antiperspirant and/or a deodorant effect.

The soft solid antiperspirant and/or deodorant product of this invention is an opaque product which leaves little or no white residue when applied and which exhibits improved efficacy and stability as compared to other formulations with different types of elastomers. Reduction of sweat of at least 40% can be achieved with the compositions of the invention as compared to typical levels of 15% for other products.

Detailed Description of the Invention

The stable, high efficacy, low residue cosmetic compositions of this invention are made by combining:

(a) 40-75% (particularly 45-60%, and, more particularly, 46-53%) of a volatile silicone (especially a D5 dimethicone having a viscosity of 0.5-1.5 centistokes);

(b) 0.1-5% (particularly 0.3-4.0%, more particularly 0.4-2.0% and even more particularly 0.4-1.5%) of a non-volatile silicone (especially a minimum of 0.5%, and particularly using phenyltrimethicone);

(c) 1-20% (particularly 2-18% and, more particularly, 5-15%) of an emollient or a mixture of two or more emollients;

(d) 0.5-20% (on a solids basis) (particularly 1-15% and more particularly 1-10%) of the cyclomethicone (and) dimethicone crosspolymer composition as described above;

(e) 0.1-20% (particularly10-20% to get an antiperspirant effect) of an antiperspirant active based on an anhydrous, buffer-free antiperspirant active;

(f) 2-15% (particularly 2-10% and, more particularly, 2-8%) of polyethylene beads having a particle size in the range of 5-40 microns and a density in the range of 0.91-0.98 g/cm^3;

(g) 0-5% antimicrobial agent; and

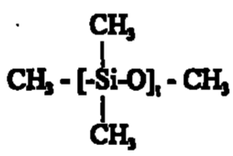
(h) 0-5% fragrance;

wherein all percents are in percents by weight based on the total weight of the composition unless otherwise indicated.

The silicone materials used in forming the compositions of the present invention may be selected from the group consisting of conventional cyclic and linear volatile and non-volatile silicones which act as a swelling agent for the suitable elastomer. Illustratively, and not by way of limitation, the volatile silicones are one or more members selected from the group consisting of cyclic polydimethylsiloxanes such as those represented by Formula I:

Formula I

where n is an integer with a value of 3-7, particularly 5-6. By volatile silicone material is meant a material that has a measurable vapor pressure at ambient temperature. For example, DC-245 fluid from Dow Corning Corporation (Midland, Michigan) is a type of cyclomethicone which can be used. These include a tetramer (or octylmethylcyclotetrasiloxane) and a pentamer (or decamethylcyclopentasiloxane). The nonvolatile and volatile linear silicones are one or more members selected from the group consisting of linear polydimethylsiloxanes such as those represented by Formula II:



Formula II

and t is selected so that the molecular weight ranges from 800-260,000 and the viscosity ranges from 5-600,000 centistokes, for example Dimethicone DC 200 from Dow Corning.

Emollients are a known class of materials in this art, imparting a soothing effect to the skin. These are ingredients which help to maintain the soft, smooth, and pliable appearance of the skin. Emollients are also known to reduce whitening on the skin and/or improve aesthetics. Examples of chemical classes from which suitable emollients can be found include:

(a) fats and oils which are the glyceryl esters of fatty acids, or triglycerides, normally found in animal and plant tissues, including those which have been hydrogenated to reduce or eliminate unsaturation. Also included are synthetically prepared esters of glycerin and fatty acids. Isolated and purified fatty acids can be esterified with glycerin to yield mono-, di-, and triglycerides. These are relatively pure fats which differ only slightly from the fats and oils found in nature. The general structure may be represented by Formula III:

Formula III

wherein each of R^1, R^2, and R^3 may be the same or different and have a carbon chain length (saturated or unsaturated) of 7 to 30. Specific examples include peanut oil, sesame oil, avocado oil, coconut, cocoa butter, almond oil, safflower oil, corn oil, cotton seed oil, castor oil, hydrogenated castor oil, olive oil, jojoba oil, cod liver oil, palm oil, soybean oil, wheat germ oil, linseed oil, and sunflower seed oil;

(b) hydrocarbons which are a group of compounds containing only carbon and hydrogen. These are derived from petrochemicals. Their structures can vary widely and include aliphatic, alicyclic and aromatic compounds. Specific examples include paraffin, petrolatum, hydrogenated polyisobutene, and mineral oil.

(c) esters which chemically, are the covalent compounds formed between acids and alcohols. Esters can be formed from almost all acids (carboxylic and inorganic) and any alcohol. Esters here are derived from carboxylic acids and an alcohol. The general structure would be $R^4CO\text{-}OR^5$. The chain length for R^4 and R^5 can vary from 7 to 30 and can be saturated or unsaturated, straight chained or branched. Specific examples include isopropyl myristate, isopropyl palmitate, isopropyl stearate, isopropyl isostearate, butyl stearate, octyl stearate, hexyl laurate, cetyl stearate, diisopropyl adipate, isodecyl oleate, diisopropyl sebacate, isostearyl lactate, $C_{12\text{-}15}$ alkyl benzoates, myreth-3 myristate, dioctyl malate, neopentyl glycol diheptanoate, neopentyl glycol dioctanoate, dipropylene glycol dibenzoate, $C_{12\text{-}13}$ alcohols lactate, isohexyl decanoate, isohexyl caprate, diethylene glycol dioctanoate, octyl isononanoate, isodecyl octanoate, diethylene glycol diisononanoate, isononyl isononanoate, isostearyl isostearate, behenyl behenate, $C_{12\text{-}13}$ alkyl fumarate, laureth-2 benzoate, propylene glycol isoceteth-3 acetate, propylene glycol ceteth-3 acetate, octyldodecyl myristate, cetyl ricinoleate, myristyl myristate.

(d) saturated and unsaturated fatty acids which are the carboxylic acids obtained by hydrolysis of animal or vegetable fats and oils. These have general structure R^6COOH with the R^6 group having a carbon chain length between 7 and 30 , straight chain or branched. Specific examples include lauric, myristic, palmitic, stearic, oleic, linoleic and behenic acid.

(e) saturated and unsaturated fatty alcohols (including guerbet alcohols) with general structure R^7COH where R^7 can be straight or branched and have carbon length of 7 to 30. Specific examples include lauryl, myristyl, cetyl, isocetyl, stearyl, isostearyl, oleyl, ricinoleyl and erucyl alcohol;

(f) lanolin and its derivatives which are a complex esterified mixture of high molecular weight esters of (hydroxylated) fatty acids with aliphatic and alicyclic alcohols and sterols. General structures would include $R^8CH_2\text{-}(OCH_2CH_2)_nOH$ where R^8 represents the fatty groups derived from lanolin and n=5 to 75 or $R^9CO\text{-}$

$(OCH_2CH_2)_nOH$ where R^9CO- represents the fatty acids derived from lanolin and n=5 to 100. Specific examples include lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin and acetylated lanolin alcohols.

(g) alkoxylated alcohols wherein the alcohol portion is selected from aliphatic alcohols having 2-18 and more particularly 4-18 carbons, and the alkylene portion is selected from the group consisting of ethylene oxide, and propylene oxide having a number of alkylene oxide units from 2-53 and, more particularly, from 2-15. Specific examples include PPG-14 butyl ether and PPG-53 butyl ether.

(h) silicones and silanes the linear organo-substituted polysiloxanes which are polymers of silicon/oxygen with general structure:

(1) $(R^{10})_3SiO(Si(R^{11})_2O)_nSi(R^{12})_3$, where R^{10}, R^{11} and R^{12} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl;

(2) $HO(R^{14})_2SiO(Si(R^{15})_2O)_nSi(R^{16})_2OH$, where R^{14}, R^{15} and R^{16} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl; or

(3) organo substituted silicon compounds of formula $R^{17}Si(R^{18})OSiR^{19}$ which are not polymeric where R^{17}, R^{18} and R^{19} can be the same or different and are each independently selected from the group consisting of phenyl and C1-C60 alkyl optionally with one or both of the terminal R groups also containing an hydroxyl group. Specific examples include dimethicone, dimethiconol behenate, C_{30-45} alkyl methicone, stearoxytrimethylsilane, phenyl trimethicone and stearyl dimethicone.

(i) mixtures and blends of two or more of the foregoing.

Emollients of special interest include C12-15 alkyl benzoate (FINSOLV TN from Finetex Inc., Elmwood Park, NJ), isopropyl myristate; and neopentyl glycol diheptanoate.

The emollient or emollient mixture or blend thereof incorporated in compositions according to the present invention can, illustratively, be included in amounts of 0.5 - 50 %, preferably 1 - 25 %, more preferably 3 - 12 %, by weight, of the total weight of the composition.

One particular elastomer of interest is DC-9040 from Dow Corning Corporation.

The antiperspirant active can be selected from the group consisting of any of the known antiperspirant active materials. These include, by way of example (and not of a limiting nature), aluminum chlorohydrate, aluminum chloride, aluminum sesquichlorohydrate, zirconyl hydroxychloride, aluminum-zirconium glycine complex (for example, aluminum zirconium trichlorohydrex gly, aluminum zirconium pentachlorohydrex gly, aluminum zirconium tetrachlorohydrex gly and aluminum zirconium octochlorohydrex gly), aluminum chlorohydrex PG, aluminum chlorohydrex PEG, aluminum dichlorohydrex PG, and aluminum dichlorohydrex PEG. The aluminum-containing materials can be commonly referred to as antiperspirant active aluminum salts. Generally, the foregoing metal antiperspirant active materials are antiperspirant active metal salts. In the embodiments which are antiperspirant compositions according to the present invention, such compositions need not include aluminum-containing metal salts, and can include other antiperspirant active materials, including other antiperspirant active metal salts. Generally, Category I active antiperspirant ingredients listed in the Food and Drug Administration's Monograph on antiperspirant drugs for over-the-counter human use can be used. In addition, any new drug, not listed in the Monograph, such as aluminum nitratohydrate and its combination with zirconyl hydroxychlorides and nitrides, or aluminum-stannous chlorohydrates, can be incorporated as an antiperspirant active ingredient in antiperspirant compositions according to the present invention.

Particular types of antiperspirant actives include aluminum zirconium trichlorohydrex and aluminum zirconium tetrachlorohydrex either with or without

glycine. A particular antiperspirant active is aluminum trichlorohydrex gly such as AZZ-902 SUF (from Reheis Inc., Berkley Heights, NJ) which has 98% of the particles less than 10 microns in size.

Antiperspirant actives can be incorporated into compositions according to the present invention in amounts in the range of 0.1 – 25% of the final composition, but the amount used will depend on the formulation of the composition. For example, at amounts in the lower end of the broader range (for example, 0.1 - 10% on an actives basis), a deodorant effect may be observed. At lower levels the antiperspirant active material will not substantially reduce the flow of perspiration, but will reduce malodor, for example, by acting as an antimicrobial material. At amounts of 10-25% (on an actives basis) such as 15 - 25%, by weight, of the total weight of the composition, an antiperspirant effect may be observed.

The antiperspirant active material is desirably included as particulate matter suspended in the composition of the present invention in amounts as described above, but can also be added as solutions or added directly to the mixture.

The polyethylene beads useful with this invention have a density in the range of 0.91-0.98 g/cm^3 and a particle size in the range of 5-40 microns, with one particular type of polyethylene having a particle size of 20 microns. All particle sizes are averages. Several types of suitable polyethylene beads that are commercially available are MICROTHENE FN 510 from Equistar Chemicals LP (Houston, Texas); ACUMIST A-6 from Allied Signal Corp., Morristown, NJ).), and Performalene™ (New Phase Technology, Piscataway, NJ). It is believed that the polyethylene component contributes to the reduction in syneresis and is also responsible for giving the products a powdery feel as determined by trained sensory panels.

Suitable antimicrobial agents include, for example, bacteriostatic quaternary ammonium compounds such as 2-amino-2-methyl-1-propanol (AMP), cetyl-trimethylammonium bromide, cetyl pyridinium chloride, 2, 4, 4'-trichloro-2'-hydroxydiphenylether (Triclosan), N-(4-chlorophenyl)-N'-(3,4-dichlorophenyl)urea

(Triclocarban), silver halides, octoxyglycerin (Sensiva™ SC 50) and various zinc salts (for example, zinc ricinoleate). The bacteriostat can, illustratively, be included in the composition in an amount of 0-5%, particularly 0.01-1.0% by weight, of the total weight of the composition. Triclosan, can illustratively be included in an amount of from 0.05% to about 0.5% by weight, of the total weight of the composition.

A variety of fragrances can be used in these compositions if a scented products is desired. Fragrances can be used in an amount in the range of 0.01-2.0%, particularly at a level of 1%. A deodorant fragrance may be used in an amount of 0.05-5.0% by weight based on the total weight of the composition.

Other various optional components include those described in U.S. Patents Numbers 5,019,375 to Tanner et al; 4,937,069 to Shin; and 5,102,656, each of which is incorporated by reference in its entirety herein. Examples of such additional ingredients include fragrances, coloring agents, opacificers, etc. in types and amounts conventionally used for such products.

These compositions are soft solids made as suspensions and thickened or gelled by the elastomer component. While other thickeners may be used, the compositions of this invention will normally use the elastomer component as the only gellant. Of course various viscosities for a soft solid may be made depending on the amount of elastomer material and the amount of other ingredients used. One group of having a more viscous form will have a viscosity in the range of 50,000 – 1,000,000 centipoise and suitable for use with an applicator with porous openings or slots such as those described in USSN 9/191,897 (PCT 99/25570) incorporated by reference herein as to the description of the applicators. Another form will have a lower viscosity such as in the range of 20,000-200,000 centipoise and will be suitable for use with applicators requiring a thinner composition, for example roll-on applicators which have a rolling ball structure. For example, such roll-on applicators are described in U.S. Patents Numbers 5,158,385 and 4,984,921. incorporated by reference herein as to the description of the applicators.

While various forms have been described, it is believed that the compositions made according to this inventions should preferably have a ratio of elastomer to antiperspirant active in the range of 1:2-1:20 in order to achieve the optimum improved efficacy and the improved stability that has been observed.

Compositions according to the present invention can be made by mixing the silicone gel material with surfactant(s) , active ingredient(s) and optionally one or more of emollient(s), thickener(s) and fragrance. Mixing conditions and the use of heating will depend on what types of materials are being combined and; the melting points for those materials as are known to those skilled in the art. For example if soft solids, roll-ons or gels are being made, temperatures, in the range of room temperature or slightly higher (for example, 25-50 degrees C, particularly 23-30 degrees C) may be used. For stick products and soft solid/cream products made with higher melting point materials (for example, high temperature waxes) temperatures from 25-85 degrees C may be used. The mixture can be introduced into dispensing containers known to those skilled in the art including those for solids, gels, roll-ons, soft solids and creams. In one particular example, slotted dispensers may be used such as those known in the art, for example, those having a parallel row or rows of straight or curved slots or holes with a screw mechanism for forcing the composition through the top as the product is used.

Where the dispensing containers have a top surface with slots therein, the composition can be rubbed onto the skin from the top surface of the container (itself fed from a reservoir of product in the container) so as to deposit an adequate amount of the cosmetic composition on to the skin. The cosmetic composition, for example, an antiperspirant and/or deodorant in the form of a soft solid, can be extruded from inside the dispensing container through the slots or holes onto the top of the surface of the dispensing container, and from there may be applied to the skin in the axillary regions to deposit sufficient amounts of antiperspirant and/or deodorant active material to reduce body malodor and/or reduce perspiration in axillary regions of the human body.

Various forms of the invention can be exemplified by the following formulations but should not be construed as limitations on the invention:

Soft Solid

(a) 1-20% of a volatile silicone such as D4 or D5 cyclomethicone (or mixtures thereof);

(b) 0.4-1.5% of a non-volatile silicone such as phenyltrimethicone;

(c) an emollient component comprising 1-8% of FINSOLV TN C12-15 alkyl benzoate, 1-8% neopentyl glycol diheptanoate, 0.5-2% isopropyl myristate;

(d) 40-60% elastomer composition (DC-9040);

(e) 15-25% antiperspirant active;

(f) 3-10% polyethylene beads of the type described above; and

(g) optionally 0.5-1.5% fragrance.

EXAMPLES

The following Examples are offered as illustrative of the invention and are not to be construed as limitations thereon. In the Examples and elsewhere in the description of the invention, chemical symbols and terminology have their usual and customary meanings. In the Examples as elsewhere in this application (a) values for n, m, etc. in formulas, molecular weights and degree of ethoxylation or propoxylation are averages; (b) temperatures are in degrees C unless otherwise indicated; and (c) the amounts of the components are in weight percents based on the standard described; if no other standard is described then the total weight of the composition is to be inferred. Various names of chemical components include those listed in the CTFA International Cosmetic Ingredient Dictionary (Cosmetics, Toiletry and Fragrance Association, Inc., 7th ed. 1997). Mixing techniques used to make the compositions are those conventionally used in the art including those described above.

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Example 1: General Method of Making Compositions

The solvent components such as the volatile silicone (for example, cyclomethicone), non-volatile silicone (for example, phenyltrimethicone), emollients (such as C12-15 alkyl benzoate, neopentyl glycol diheptanoate and isopropyl myristate) are added to a large capacity mixer equipped with a mechanical stirrer and blended for about 5 minutes or until a homogeneous dispersion is formed.. The antiperspirant active is then added as a dry powder with continuous mixing followed by the polyethylene beads. The entire mixture is mixed for about 20 minutes or until a homogeneous dispersion is formed. The sides of the mixing vessel are scraped with a spatula of sufficient size to free solid chunks of particulates. The elastomer is then added and blending is continued for about 20 minutes or until a homogeneous white creamy paste is formed. If fragrance is added it is done so at this point and mixed until well blended or for about 5 minutes. The resulting soft solid is then passed through a homogenizer (KINEMATIC homogenizer) and placed back into the reaction vessel. Multiple passes through the homogenizer are used (usually about 1-4) until the product is stable, that is, exhibits a syneresis of less than 8%, and preferably less than 5% as evaluated by the process described in Example 3, below. The entire process is done without the application of any additional heat.

Example 2: Alternative General Method of Making Compositions

The elastomer composition is weighed out in a stainless steel container, which container is part of a Hobart Mixer (Model N-50, from Hobart Corporation, Troy, OH). The cyclomethicone, dimethicone, neopentyl glycol diheptanoate, diethyl phthalate and isopropyl myristate are weighed separately and added sequentially to the same container s the elastomer. The ingredients are blended for about 5 minutes or until a homogeneous mixture is formed. The antiperspirant active is then slowly added while mixing is continued. Mixing is then continued for an additional 10 minutes. Next the polyethylene powder is added slowly with mixing. After the addition is completed, mixing is continued for an additional 10 minutes. If fragrance is used it is added at this

point and mixing is continued for an additional 5 minutes. The soft solid product is then transferred to suitable containers. This process does not use any added heat.

Example 3: Stability Evaluation

Samples (10.0g) of formulated product are placed in a 25 cm^3 vial. The sample is incubated at a temperature of 50 degrees C. for 3 days and then centrifuged for 20 minutes at speed of 3900 rpm on a Centra CL2 centrifuge from International Equipment Co., Needham Heights, MA). Any liquid remaining on top of the product sample was removed with a pipette and weighed. Percent syneresis is calculated as :

(weight of liquid removed after centrifugation) X 100/10.0

Normally it was desired to obtain syneresis levels of less than 8% and preferably less than 5% as described above. By way of comparison, the percent syneresis of a commercially available soft solid (Secret® Platinum powder fresh scent soft solid, a wax bases product containing19% aluminum zirconium trichlorohydrex gly (anhydrous), cyclopentasiloxane, dimethicone, tribehenin, C18-36 acid triglyceride and fragrance) exhibited a percent syneresis of about 19.79%.

Examples 16, 16-K1, 16-N, and 16-O

The method described in Example 2 was done with the amounts of ingredients listed in TABLE A. The percent syneresis was measured by the method described in Example 3.

TABLE A

Ingredient	Ex. 16	Ex. 16-K1	Ex. 16-N	Ex. 16-O
Elastomer (DC 9040)	500.0g (50.00%)	250.00g (50.00%)	250.00g (50.00%)	260.00g (52.00%)
Antiperspirant active (AZZ-902 SUF)	250.0g (25.00%)	125.00g (25.00%)	125.00g (25.00%)	125.00g (25.00%)
Neopentyl glycol diheptanoate	0	25.00g (5.00%)	50.00g (10.00%)	25.00g (5.00%)
Cyclomethicone (D5) DC-245	95.0g (9.50%)	22.50g (4.50%)	0	22.50g (4.50%)
Diethyl phthalate	10.0g (1%)	5.00g (1.00%)	5.00g (1.00%)	5.00g (1.00%)
Isopropyl myristate	25.0g (2.50%)	12.50g (2.50%)	12.50g (2.50%)	12.50g (2.50%)
Dimethicone	20.0g	10.00g	10.00g	10.00g

DC- 200 (1.5 centistokes)	(2.00%)	(2.00%)	(2.00%)	(2.00%)
Polyethylene (MICROTHENE FN 510)	100.0g (10.00%)	45.00g (9.00%)	42.50g (8.50%)	35.00g (7.00%)
Fragrance	0	5.00g (1.00%)	5.00g (1.00%)	5.00g (1.00%)
Total	1000g (100%)	500.00g (100%)	500.00g (100%)	500.00g (100%)
% Syneresis	1.53	1.99	1.38	3.72

Examples 16-P, 16-Q and 16-R

The method described in Example 2 was done with the amounts of ingredients listed in TABLE B. The percent syneresis was measured by the method described in Example 3.

TABLE B

Ingredient	Ex. 16-P	Ex. 16-Q	Ex. 16-R
Elastomer (DC –2-9040)	250.00g (50.00%)	250.00g (50.00%)	250.00g (50.00%)
Antiperspirant active (AZZ-902 SUF)	125.00g (25.00%)	125.00g (25.00%)	125.00g (25.00%)
Neopentyl glycol diheptanoate	25.00g (5.00%)	25.00g (5.00%)	25.00g (5.00%)
Cyclomethicone (D5) DC-245	27.50g (5.50%)	35.00g (7.00%)	32.50g (6.50)
Diethyl phthalate	0	5.00g (1.00%)	5.00g (1.00%)
Isopropyl myristate	12.50g (2.50%)	0	12.50g (2.50%)
Dimethicone DC- 200 (1.5 centistokes)	10.00g (2.00%)	10.00g (2.00%)	0
Polyethylene (MICROTHENE FN 510)	45.00g (9.00%)	45.00g (9.00%)	45.00g (9.00%)
Fragrance	5.00g (1.00%)	5.00g (1.00%)	5.00g (1.00%)
Total	500.00g (100%)	500.00g (100%)	500.00g (100%)
% Syneresis	3.15	4.16	3.75

Claims

We Claim:

1. A cosmetic composition comprising:

(a) 40-75% of a volatile silicone;

(b) 0.1-5% of a non-volatile silicone;

(c) 1-20% of an emollient;

(d) 0.5-20% (on a solids basis) of a cyclomethicone (and) dimethicone crosspolymer made with an ≡Si-H containing polysiloxane and an alpha, omega-diene of formula $CH_2=CH(CH_2)_xCH=CH_2$, where x=1-20, to form a gel by crosslinking and addition of ≡Si-H across double bonds in the alpha, omega diene, which crosspolymer has a viscosity in the range of 250,000-450,000 centipoise;

(e) 0.1-20% of an antiperspirant active based on an anhydrous, buffer-free antiperspirant active;

(f) 2-15% of polyethylene beads having a particle size in the range of 5-40 microns and a density in the range of 0.91-0.98 g/cm^3;

(g) 0-5% antimicrobial agent; and

(h) 0-5% fragrance;

wherein all percents are in percents by weight based on the total weight of the composition.

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ABSTRACT

An improved soft solid cosmetic suspension is disclosed which comprises (a) a cyclomethicone (and) dimethicone crosspolymer made with an ≡Si-H containing polysiloxane and an alpha, omega-diene to form a gel by crosslinking and addition of ≡Si-H across double bonds in the alpha, omega diene, which crosspolymer has a viscosity in the range of 250,000-450,000 centipoise; (b) polyethylene beads having a density in the range of 0.91-0.98 grams/cm^3 and a particle size in the range of 5-40 microns, wherein the polyethylene beads are used in an amount of at least 2% by weight based on the total weight of the composition; (c) a volatile silicone; (d) a non-volatile silicone; (e) an emollient 9 or mixture of two or more emollients); and (f) an effective amount of an antiperspirant active material.

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INFORME DE PROTOCOLO

Expediente 02-99271
Fecha: 20 de agosto de 2003

Se certifica que:

Desde fecha 2 de agosto de 1972, del folio 612 al folio 616 del libro de Protocolo Nº 3, obra el poder Nº 131 conferido por COLGATE PALMOLIVE COMPANY

domiciliado(a) en New York, New York. E.U.A.

al doctor RAMIRO CASTRO DUQUE y/o RAFAEL BERNAL SALAMANCA

Representante en Santafé de Bogotá D.C. los mismos

Facultad para desistir SI.

Revisado 202047

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Industria y Comercio
SUPERINTENDENCIA

2020
Bogotá, D.C.,

Doctor:
Ramiro Castro Duque
Apoderado
Colgate-Palmolive Company

Oficio N° 06839

ASUNTO:		
	Radicación N°	02-99271
	Solicitud Internacional	PCT/US01/10331
	Fecha inicio fase nacional	04/11/2002
	Trámite	011
	Evento	379
	Actuación	430
	Folios	001

Como resultado del examen de forma, realizado con fundamento el el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, se le comunica que:

- ☐ La solicitud no contiene la traducción de los anexos del reporte de examen preliminar internacional (Art. 36.2.b) del tratado PCT).
- ☐ La solicitud no contiene la copia del documento en que consta la cesión del derecho a la patente del inventor al solicitante o a su causante. (Art. 26-k) Decisión 486).

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.

ALIX CARMENZA CESPEDES DE VERGEL
Jefe de la División de Nuevas Creaciones.

El anterior requerimiento fue notificado por fijación en lista de fecha, 22 AGO. 2003.

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