



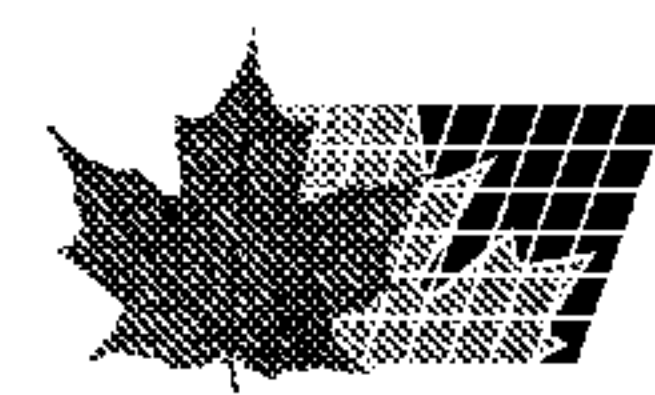
(86) Date de dépôt PCT/PCT Filing Date: 2007/02/15
 (87) Date publication PCT/PCT Publication Date: 2007/08/30
 (45) Date de délivrance/Issue Date: 2014/08/26
 (85) Entrée phase nationale/National Entry: 2009/08/11
 (86) N° demande PCT/PCT Application No.: US 2007/003916
 (87) N° publication PCT/PCT Publication No.: 2007/097967
 (30) Priorité/Priority: 2006/02/16 (US11/355,152)

(51) Cl.Int./Int.Cl. *A61K 8/81* (2006.01),
A61K 8/06 (2006.01), *A61K 8/11* (2006.01),
A61K 8/19 (2006.01), *A61K 8/29* (2006.01),
A61K 8/35 (2006.01), *A61K 8/37* (2006.01),
A61K 8/893 (2006.01), *A61Q 1/02* (2006.01),
A61Q 17/04 (2006.01), *A61Q 19/00* (2006.01)
 (72) Inventeurs/Inventors:
 CANTWELL, MAGGIE YUN, US;
 EPSTEIN, HOWARD A., US
 (73) Propriétaire/Owner:
 KAO BRANDS COMPANY, US
 (74) Agent: MACRAE & CO.

(54) Titre : COMPOSITIONS COSMETIQUES ET PROCEDES DE FABRICATION ET D'UTILISATION DES
 COMPOSITIONS
 (54) Title: COSMETIC COMPOSITIONS AND METHODS OF MAKING AND USING THE COMPOSITIONS

(57) **Abrégé/Abstract:**

Cosmetic compositions which, when applied to the skin, mask skin imperfections and provide more uniform skin tone are described. The compositions can be formulated to address the needs of users having a specific skin tone. The compositions include one or more pigments (e.g., iron oxides) and may also include reflective particles such as mica coated with iron oxide and/or titanium dioxide. The compositions can be oil-in-water emulsions comprising a discontinuous oil phase dispersed in a continuous aqueous phase. The compositions can also include emollients, one or more skin sheen additives, a film former (e.g., polycyclopentadiene) and isohexadecane. Compositions formulated for lighter skin tones can include one or more sunscreen agents. The compositions can be formulated to have high color transfer resistance. Methods of making the compositions and methods of treatment comprising applying the compositions to the skin are also described.



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
30 August 2007 (30.08.2007)

PCT

(10) International Publication Number
WO 2007/097967 A2

(51) International Patent Classification:

A61K 8/19 (2006.01) A61K 8/29 (2006.01)
A61K 8/26 (2006.01) A61Q 19/00 (2006.01)

(21) International Application Number:

PCT/US2007/003916

(22) International Filing Date:

15 February 2007 (15.02.2007)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/355,152 16 February 2006 (16.02.2006) US

(71) Applicant (for all designated States except US): **KAO BRANDS COMAPNY** [US/US]; 2535 Spring Grove Ave., Cincinnati, OH 45214 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CANTWELL, Maggie, Yun** [US/US]; 8716 Tanagerwoods Drive, Cincinnati, OH 45249 (US). **EPSTEIN, Howard, A.** [US/US]; 8732 Tanagerwoods Drive, Cincinnati, OH 45249 (US).

(74) Agent: **RAIMUND, Christopher, W.**; Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COSMETIC COMPOSITIONS AND METHODS OF MAKING AND USING THE COMPOSITIONS

(57) Abstract: Cosmetic compositions which, when applied to the skin, mask skin imperfections and provide more uniform skin tone are described. The compositions can be formulated to address the needs of users having a specific skin tone. The compositions include one or more pigments (e.g., iron oxides) and may also include reflective particles such as mica coated with iron oxide and/or titanium dioxide. The compositions can be oil-in-water emulsions comprising a discontinuous oil phase dispersed in a continuous aqueous phase. The compositions can also include emollients, one or more skin sheen additives, a film former (e.g., polycyclopentadiene) and isohexadecane. Compositions formulated for lighter skin tones can include one or more sunscreen agents. The compositions can be formulated to have high color transfer resistance. Methods of making the compositions and methods of treatment comprising applying the compositions to the skin are also described.

WO 2007/097967 A2

**COSMETIC COMPOSITIONS AND METHODS OF MAKING
AND USING THE COMPOSITIONS**

BACKGROUND OF THE INVENTION

Technical Field

5 This application relates generally to cosmetic compositions and to methods of making and using the cosmetic compositions. In particular, this application relates to moisturizing compositions comprising one or more pigments which, when applied to the skin, mask skin imperfections and provide more uniform skin tone and to methods of making and using these compositions.

10 **Background of the Technology**

 Consumers are increasingly interested in improving the appearance of their skin. In particular, consumers want the skin on their body to look more even and more translucent and to look clear and unblemished. Consumers also want their skin to look and feel soft, smooth and unwrinkled. This desire for improved skin appearance is not limited to the skin of the face but also includes the neck and chest, the hands, the legs, the arms and
15 anywhere else skin may be visible.

Consumers are currently using a variety of products and procedures to “fix” and/or prevent body skin problems. For example, scars and pregnancy rashes have been treated using glycolic serums and scar faders. Consumers with skin that is not sufficiently shiny, smooth or translucent or that need help with wrinkles, sun spots, pregnancy marks, etc. have employed resurfacing treatments (e.g., with alpha or beta hydroxys or peptides), microdermabrasion, exfoliating treatments, and skin fading treatments. Consumers with bumpy, dry or rough skin or with fine lines and wrinkles have employed exfoliants (e.g., sugar or salt). Consumers with uneven skin tone have employed fading creams. Consumers with lines and wrinkles have employed botox, collagen or laser resurfacing treatments. In addition, uneven skin tone has been treated using fading creams and visible veins have been treated using laser treatment. Tanning has been accomplished using self tanners and spray tanners. The procedures being employed by consumers also include plastic surgery and various dermatological approaches.

Many of these treatments have known shortcomings. For example, glycolics can cause irritation, especially for users having sensitive skin. Exfoliation treatments such as sugar and salt scrubs can be harsh to the skin. Dermatological treatments and collagen and botox injections can be costly. In addition, today’s consumers want “immediate gratification” (i.e., they want to see and/or feel a difference in their skin immediately). In addition, today’s consumers want products that will help conceal lines, wrinkles and other problems in addition to cleansing and moisturizing the skin.

Cosmetic compositions for application to the skin are described in the following publications. U.S. Patent No. 5,853,712 discloses foundation compositions made by

incorporating a mixture of pigments into a liquid base. U.S. Patent No. 5,961,961 discloses cosmetic compositions containing an inorganic sunscreen agent such as titanium dioxide and an organic sunscreen agent. U.S. Patent No. 5,997,887 discloses skin care compositions which comprise a charged particulate material dispersed in a hydrophilic carrier. U.S. Patent No. 6,039,935 discloses a cosmetic sunscreen composition including at least one organic sunscreen, a cross-linked non-emulsifying siloxane elastomer, a volatile siloxane, and water. U.S. Patent No. 6,284,228 B1 discloses a color blending system for foundation makeup compositions. U.S. Patent Publication No. 2004/0126337 A1 discloses a composition comprising a lipophilic sunscreen, a copolymer of sodium acryloyldimethyltaurate and one or more acryls and an oil absorbent. U.S. Patent Publication No. 2005/0244348 A1 discloses a cosmetic or dermatological preparation for the cosmetic treatment of reddened skin comprising one or more green pigments, one or more white pigments and one or more UV protective filters. U.S. Patent Publication No. 2005/0031556 A1 discloses a light-protective cosmetic or dermatological preparation comprising at least one hydroxybenzophenone and at least one benzoxazole derivative. International Publication No. WO 96/03964 discloses foundation compositions made by incorporating a mixture of pigments into a liquid base. International Publication No. WO 97/03648 discloses composition for the topical delivery of active ingredients useful for treating conditions such as acne.

20 Although numerous compositions have been formulated for treating the skin, there still exists a need for improved cosmetic compositions which can subtly mask skin

imperfections and impart a more uniform tone to the skin while also delivering emollients to the skin.

SUMMARY OF THE INVENTION

According to a first embodiment, a cosmetic composition for application to the skin
5 is provided which comprises: one or more pigments coated with a composition comprising
an acrylic polymer; an emulsifier; optionally, one or more emollients; and optionally, one
or more organic sunscreen agents; wherein each of the one or more pigments is present in
the composition at a concentration such that the composition, when applied to the skin of a
user, imparts a pigment to the skin which masks skin imperfections and imparts a more
10 uniform tone to the skin. A method comprising applying a cosmetic composition as set
above to the skin is also provided.

According to a second embodiment, a cosmetic composition for application to the
skin is provided which comprises: one or more pigments; an emulsifier; optionally, one or
more emollients; a film forming agent; and optionally, one or more organic sunscreen
15 agents; wherein each of the one or more pigments are present in the composition at a
concentration such that the composition, when applied to the skin of a user, imparts a
pigment to the skin which masks skin imperfections and imparts a more uniform tone to
the skin. A method comprising applying a cosmetic composition as set above to the skin is
also provided.

20 According to a third embodiment, a cosmetic composition for application to the
skin is provided which comprises: one or more pigments other than mica in a concentration

of less than 0.09 percent by weight based on the total weight of the composition; an emulsifier; optionally, one or more emollients; and, optionally, one or more organic sunscreen agents; wherein each of the one or more pigments are present in the composition at a concentration such that the composition, when applied to the skin of a user, imparts a pigment to the skin which masks skin imperfections and imparts a more uniform tone to the skin. A method comprising applying a cosmetic composition as set above to the skin is also provided.

According to a fourth embodiment, a method of making an oil-in-water emulsion is provided which comprises: mixing an aqueous phase with an oil phase comprising an oil-in-water emulsifier and, optionally, one or more emollients at a temperature greater than 70 °C; cooling the resulting mixture; mixing one or more iron oxide pigments into the mixture at a temperature at or below 60° C (e.g., 53° C-57° C); and mixing hydrogenated polycyclopentadiene and isohexadecane into the resulting mixture at a temperature at or below 55° C (e.g., 50° C -55° C). The method as set forth above can further comprise mixing one or more reflective pigments into the mixture subsequent to mixing hydrogenated polycyclopentadiene and isohexadecane into the resulting mixture.

DETAILED DESCRIPTION OF THE INVENTION

Skin care issues can typically be grouped according to the skin tone of the user. Thus, consumers having a particular skin tone will tend to have similar concerns or issues with the appearance of their skin. Skin tones can be classified using the Fitzpatrick Phototype Scale {J. Amer. Acad. of Dermatology: 46(2) Supplement (2002); 48(6) S139-

S142 (S2003)}. The Fitzpatrick Phototype Scale divides skin types into six categories ranging from ivory white to dark brown or black. The following table illustrates some general characteristics of each of the Fitzpatrick skin phototypes.

	I	II	III	IV	V	VI
Unexposed Skin Color	Ivory White	White	White	Beige or lightly tanned	Moderate brown or tanned	Dark brown or black
Sensitivity to UV (Sunlight)	Very Sensitive (++++)	Very Sensitive (+++/++++)	Quite Reactive (+++)	Moderately Reactive (++)	Minimally Sensitive (+)	Least Sensitive (0 - ±)
Sunburn History	Burns easily/ Never tans	Burns easily /tans with difficulty	Burns and tans moderately	Burns minimally/ Tans easily	Rarely burns/ tans profusely	Never burns / tans profusely
Photoaging	Strong / Early onset	Strong / Early onset	Moderate to strong	Moderate to low / not excessive	Slow, gradual, and low	Slow, gradual and minimum
Ethnicity Examples	Northern European / Celtic	European/ Native American	Central/ Eastern/ Southern Europe	Asian/ Filipino	African	African

The compositions described herein can be skin care lotions that can be applied to the skin in a conventional manner. The formulations described herein can be customized to address the specific skin care needs of diverse skin types. The formulations can be “customized” to immediately improve the appearance and texture of skin while other ingredients in the formulations continue to provide additional benefits over time with continued use of the product. The formulations described herein can therefore be considered hybrid products that incorporate the best properties of a makeup, a skin care emollient lotion and a fortifying agent (e.g., a sunscreen).

According to one embodiment, the compositions described herein are oil-in-water emulsions. These oil-in-water emulsions, however, can contain a non-ionic *water-in-oil* emulsifier based on silicone (Cetyl PEG/PPG-10/1 Dimethicone). The incorporation of Cetyl PEG/PEG-10/1 Dimethicone into the oil phase was found to improve resistance to color transfer from skin to clothing and provide improvement to the “feel” of the formulation when applied to skin. Further, when a sunscreen was added to formulations including Cetyl PEG/PEG-10/1 Dimethicone, it was found that the level of sunscreen required to achieve an SPF of 16 could be dramatically reduced. This effect was achieved with relatively low levels of the Cetyl PEG/PEG-10/1 Dimethicone (i.e., 0.4 wt.% based on the total weight of the composition). In contrast, the manufacturer recommends use levels of 1.5-2.5 wt.% of Cetyl PEG/PEG-10/1 Dimethicone.

The compositions can also be formulated as water-in-oil emulsions.

The compositions described herein can also include pigments (e.g., iron oxide pigments). The pigments may be surface treated with an acrylic polymer. For example, the pigments can be surface treated with a composition comprising water, an acrylate/octyl acrylate copolymer, a sodium acrylate/sodium acryloyldimethyl taurate copolymer and aminomethyl propanol. A material of this type is available from Kobo Products, Inc. It was found that iron oxides with other surface treatments (e.g., Sympholight which is an iron oxide/silica) did not result in compositions having comparable color transfer resistance. Although pigments having acrylic polymer surface treatments are preferred, pigments having no surface treatment or pigments having other surface treatments can also be used.

The iron oxide pigments included in the formulations can help even natural skin tone variation found within each general skin type. Unexpectedly, it was found that the iron oxide pigments, when used in the base formulation, can have a strong color impact on the mass tone of the skin with minimal color transfer from skin to clothing.

5 In addition to the above, color transfer from the body to clothing can be further minimized by incorporation of hydrogenated polycyclopentadiene (e.g., Koboguard 5400 IDD). This material is a film-forming low molecular weight polymer that is extremely stick and tacky. For this reason it is not commonly used in body lotions. To remove the sticky, tacky property the formulation and further reduce color transfer, isohexadecane
10 (e.g., Permethyl 101A) can be added to the formulations. The hydrogenated polycyclopentadiene and isohexadecane can be pre-mixed and added to the formulation after the oil and water phases are combined and the resulting emulsion has formed. The hydrogenated polycyclopentadiene and isohexadecane can be added to the emulsion when the emulsion is at a temperature below 50°C. In this manner, a further reduction in
15 pigment transfer can be realized.

Other film forming agents can also be used. By film forming agents, it is meant materials which, upon drying, produce a continuous film on skin, hair, or nails. Exemplary film forming agents which can be used in the compositions are set forth in the following table.

Acrylamide/Ammonium Acrylate Copolymer	Ethylcellulose	Polyquaternium-34
Acrylamides Copolymer	Ethylene/Acrylic Acid Copolymer	Polyquaternium-35
Acrylamides/DMAPA Acrylates/Methoxy PEG	Ethylene/Acrylic Acid/VA Copolymer	Polyquaternium-36
Methacrylate Copolymer	Ethylene/Calcium Acrylate Copolymer	Polyquaternium-37
Acrylamide/Sodium Acrylate Copolymer	Ethylene/MA Copolymer	Polyquaternium-39
Acrylamidopropyltrimonium Chloride/Acrylamide	Ethylene/Magnesium Acrylate Copolymer	Polyquaternium-43
Copolymer	Ethylene/Methacrylate Copolymer	Polyquaternium-44

Acrylamidopropyltrimonium Chloride/Acrylates Copolymer
 Acrylates/ Acetoacetoxyethyl Methacrylate Copolymer
 Acrylates/Acrylamide Copolymer
 Acrylates/Ammonium Methacrylate Copolymer
 Acrylates Copolymer
 Acrylates/Diacetoneacrylamide Copolymer
 Acrylates/Dimethicone Copolymer
 Acrylates/Dimethylaminoethyl Methacrylate Copolymer
 Acrylates/Hydroxyesters Acrylates Copolymer
 Acrylates/Octylacrylamide Copolymer
 Acrylates/Octyl Acrylate Copolymer
 Acrylates/PVP Copolymer
 Acrylates/VA Copolymer
 Acrylates/VA Crosspolymer
 Acrylic Acid/Acrylonitrogens Copolymer
 Adipic Acid/CHDM/MA/Neopentyl Glycol/Trimellitic Anhydride Copolymer
 Adipic Acid/Diethylene Glycol/Glycerin Crosspolymer
 Adipic Acid/Diethylenetriamine Copolymer
 Adipic Acid/Dimethylaminohydroxypropyl Diethylenetriamine Copolymer
 Adipic Acid/Epoxypropyl Diethylenetriamine Copolymer
 Adipic Acid/Fumaric Acid/Phthalic Acid/Tricyclodecane Dimethanol Copolymer
 Adipic Acid/Isophthalic Acid/Neopentyl Glycol/Trimethylolpropane Copolymer
 Adipic Acid/Neopentyl Glycol/Trimellitic Anhydride Copolymer
 Albumen
 Allyl Stearate/VA Copolymer
 Aminoethylacrylate Phosphate/ Acrylates Copolymer
 Ammonium Acrylates/Acrylonitrogens Copolymer
 Ammonium Acrylates Copolymer
 Ammonium Alginate
 Ammonium Polyacrylate
 Ammonium Styrene/Acrylates Copolymer
 Ammonium VA/Acrylates Copolymer
 AMP-Acrylates Copolymer
 AMP-Acrylates/Diacetoneacrylamide Copolymer
 AMP-Acrylates/Dimethylaminoethylmethacrylate Copolymer
 AMPD-Acrylates/Diacetoneacrylamide Copolymer
 Balsam Canada (Abies Balsamea)
 Balsam Copaiba (Copaifera Officinalis)
 Balsam Oregon (Pseudotsuga Menziesii)
 Balsam Peru (Myroxylon Pereirae)
 Balsam Tolu (Myroxylon Balsamum)
 Benzoic Acid/Phthalic Anhydride/Pentaerythritol/Neopentyl Glycol/Palmitic Acid Copolymer
 Benzoin (Styrax Benzoin) Gum
 Butadiene/Acrylonitrile Copolymer
 Butoxy Chitosan
 Butyl Acrylate/Hydroxyethyl Methacrylate Copolymer
 Butyl Acrylate/Styrene Copolymer
 Butylated Polyoxymethylene Urea
 Butylated PVP
 Butyl Benzoic Acid/Phthalic Anhydride/Trimethylolethane Copolymer
 Ethylene/Propylene Copolymer
 Ethylene/Sodium Acrylate Copolymer
 Ethylene/VA Copolymer
 Ethylene/Zinc Acrylate Copolymer
 Ethyl Ester of PVM/MA Copolymer
 Flexible Collodion
 Galactoarabinan
 Glycereth-7 Hydroxystearate/IPDI Copolymer
 Glyceryl Polyacrylate
 Glyceryl Polymethacrylate
 Gutta Percha
 Hydrogenated Rosin
 Hydrogenated Styrene/Butadiene Copolymer
 Hydrolyzed Wheat Protein/Dimethicone Copolyol Phosphate Copolymer
 Hydroxybutyl Methylcellulose
 Hydroxyethylcellulose
 Hydroxyethyl Chitosan
 Hydroxyethyl Ethylcellulose
 Hydroxypropylcellulose
 Hydroxypropyl Chitosan
 Hydroxypropyl Guar
 Hydroxypropyl Methylcellulose
 Isobutylene/MA Copolymer
 Isobutylene/Sodium Maleate Copolymer
 Isopropyl Ester of PVM/MA Copolymer
 Lauryl Acrylate/VA Copolymer
 Lauryl Methacrylate/Glycol Dimethacrylate Copolymer
 Maltodextrin
 Mannan
 Methacryloyl Ethyl Betaine/Acrylates Copolymer
 Methyl Methacrylate Crosspolymer
 Nitrocellulose
 Nylon-12/6/66 Copolymer
 Octadecene/MA Copolymer
 Octylacrylamide/ Acrylates/Butylaminoethyl Methacrylate Copolymer
 Phthalic Anhydride/Adipic Acid/Castor Oil/Neopentyl Glycol/PEG-3/Trimethylolpropane Copolymer
 Phthalic Anhydride/Benzoic Acid/Trimethylolpropane Copolymer
 Phthalic Anhydride/Butyl Benzoic Acid/Propylene Glycol Copolymer
 Phthalic Anhydride/Glycerin/Glycidyl Decanoate Copolymer
 Phthalic Anhydride/Trimellitic Anhydride/Glycols Copolymer
 Piperylene/Butene/Pentene Copolymer
 Polyacrylamide
 Polyacrylamidomethylpropane Sulfonic Acid
 Polyacrylic Acid
 Polybeta-Alanine
 Polybeta-alanine/Glutaric Acid Crosspolymer
 Polybutyl Acrylate
 Polybutylene Terephthalate
 Polychlorotrifluoroethylene
 Polydiethyleneglycol Adipate/IPDI Copolymer
 Polydimethylaminoethyl Methacrylate
 Polyethylacrylate
 Polyethylene
 Polyquaternium-45
 Polyquaternium-46
 Polyquaternium-47
 Polysilicone-6
 Polysilicone-8
 Polysilicone-11
 Polystyrene
 Polyvinyl Acetate
 Polyvinyl Alcohol
 Polyvinyl Butyral
 Polyvinylcaprolactam
 Polyvinyl Chloride
 Polyvinyl Imidazolium Acetate
 Polyvinyl Laurate
 Polyvinyl Methyl Ether
 Polyvinyl Stearyl Ether
 Potassium Carbomer
 Potassium Carrageenan
 PPG-12/SMDI Copolymer
 PPG-7/Succinic Acid Copolymer
 PPG-26/TDI Copolymer
 PVM/MA Copolymer
 PVM/MA Decadiene Crosspolymer
 PVP
 PVP/Dimethiconylacrylate/Polycarbamyl/Polyglycol Ester
 PVP/Dimethylaminoethylmethacrylate Copolymer
 PVP/Dimethylaminoethylmethacrylate/Polycarbamyl Polyglycol Ester
 PVP/Eicosene Copolymer
 PVP/Hexadecene Copolymer
 PVP/Polycarbamyl Polyglycol Ester
 PVP/VA Copolymer
 PVP/VA/Itaconic Acid Copolymer
 PVP/VA/Vinyl Propionate Copolymer
 Quaternium-22
 Rosin
 Rubber Latex
 Serum Albumin
 Shellac
 Sodium Acrylates/Acrolein Copolymer
 Sodium Acrylates Copolymer
 Sodium Acrylate/Vinyl Alcohol Copolymer
 Sodium Carbomer
 Sodium Carboxymethyl Chitin
 Sodium Carboxymethyl Starch
 Sodium Carrageenan
 Sodium C4-12 Olefin/Maleic Acid Copolymer
 Sodium DVB/Acrylates Copolymer
 Sodium Isooctylene/MA Copolymer
 Sodium MA/Diisobutylene Copolymer
 Sodium Polyacrylate
 Sodium Polymethacrylate
 Sodium Polystyrene Sulfonate
 Sodium PVM/MA/Decadiene Crosspolymer
 Sodium Styrene/Acrylates Copolymer
 Sodium Tauride Acrylates/Acrylic Acid/Acrylonitrogens Copolymer
 Starch/Acrylates/ Acrylamide Copolymer
 Starch Dimethylaminoethyl Ether
 Stearamidopropyl Dimethicone
 Steareth-10 Allyl Ether/Acrylates Copolymer
 Stearylvinyl Ether/MA Copolymer
 Styrene/ Acrylates/ Acrylonitrile Copolymer
 Styrene/ Acrylates/ Ammonium Methacrylate

Butyl Ester of Ethylene/MA Copolymer	Polyethylene Terephthalate	Copolymer
Butyl Ester of PVM/MA Copolymer	Polyethylglutamate	Styrene/ Acrylates Copolymer
Calcium Carboxymethyl Cellulose	Polyethylmethacrylate	Styrene/Allyl Benzoate Copolymer
Calcium Carrageenan	Polyglucuronic Acid	Styrene/DVB Copolymer
Calcium/Sodium PVM/MA Copolymer	Polyisobutene	Styrene/Isoprene Copolymer
C1-5 Alkyl Galactomannan	Polylysine	Styrene/MA Copolymer
Carboxybutyl Chitosan	Polymethacrylamidopropyltrimonium Methosulfate	Styrene/Methylstyrene/Indene Copolymer
Carboxymethyl Chitosan	Polymethacrylic Acid	Styrene/PVP Copolymer
Carboxymethyl Chitosan Succinamide	Polymethyl Acrylate	Styrene/VA Copolymer
Carboxymethyl Dextran	Polymethylglutamate	Sucrose Benzoate/Sucrose Acetate Isobutyrate/ Butyl Benzyl Phthalate Copolymer
Carboxymethyl Hydroxyethylcellulose	Polymethyl Methacrylate	Sucrose Benzoate/Sucrose Acetate Isobutyrate/Butyl Benzyl Phthalate/Methyl Methacrylate Copolymer
Castor Oil/IPDI Copolymer	Polyoxyisobutylene/Methylene Urea Copolymer	Sucrose Benzoate/Sucrose Acetate Isobutyrate Copolymer
Cellulose Acetate	Polyoxymethylene Melamine	TEA-Acrylates/Acrylonitrogens Copolymer
Cellulose Acetate Butyrate	Polypentene	Terephthalic Acid/Isophthalic Acid/Sodium Isophthalic Acid Sulfonate/Glycol Copolymer
Cellulose Acetate Propionate	Polyperfluoroperhydrophenanthrene	Tosylamide/Epoxy Resin
Cellulose Acetate Propionate	Poly-p-Phenylene Terephthalamide	Tosylamide/Formaldehyde Resin
Carboxylate Cellulose Gum	Polyquaternium-1	Tragacanth (Astragalus Gummifer) Gum
Cetearyl Dimethicone/Vinyl Dimethicone Crosspolymer	Polyquaternium-2	Tricontanyl PVP
Chitosan	Polyquaternium-4	Trimethylpentanediol/Isophthalic Acid/Trimellitic Anhydride Copolymer
Chitosan Adipate	Polyquaternium-5	Tromethamine Acrylates/Acrylonitrogens Copolymer
Chitosan Ascorbate	Polyquaternium-6	VA/Butyl Maleate/Isobornyl Acrylate Copolymer
Chitosan Formate	Polyquaternium-7	VA/Crotonates Copolymer
Chitosan Glycolate	Polyquaternium-8	VA/Crotonates/Methacryloxybenzophenone-1 Copolymer
Chitosan Lactate	Polyquaternium-9	VA/Crotonates/Vinyl Neodecanoate Copolymer
Chitosan PCA	Polyquaternium-10	VA/Crotonates/Vinyl Propionate Copolymer
Chitosan Salicylate	Polyquaternium-11	VA/Crotonic Acid/PEG-20M Copolymer
Chitosan Succinamide	Polyquaternium-12	VA/DBM Copolymer
Collodion	Polyquaternium-13	VA/Isobutyl Maleate/Vinyl Neodecanoate Copolymer
Copal	Polyquaternium-14	VA/Vinyl Butyl Benzoate/Crotonates Copolymer
Corn Starch/Acrylamide/Sodium Acrylate Copolymer	Polyquaternium-15	Vinyl Acetate
DEA-Styrene/Acrylates/DVB Copolymer	Polyquaternium-16	Vinyl Caprolactam/PVP/ Dimethylaminoethyl Methacrylate Copolymer
Diethylene Glycolamine/Epichlorohydrin/ Piperazine Copolymer	Polyquaternium-17	Yeast Betaglucan
Diglycol/CHDM/Isophthalates/SIP Copolymer	Polyquaternium-18	Yeast Polysaccharides
Diglycol/Isophthalates/SIP Copolymer	Polyquaternium-19	Zein
Dihydroxyethyl Tallowamine/IPDI Copolymer	Polyquaternium-20	
Dilinoleyl Alcohol/IPDI Copolymer	Polyquaternium-22	
Dimethicone/Sodium PG-Propyldimethicone Thiosulfate Copolymer	Polyquaternium-24	
Dimethiconol/IPDI Copolymer	Polyquaternium-27	
DMAPA Acrylates/Acrylic Acid/Acrylonitrogens Copolymer	Polyquaternium-28	
Dodecanedioic Acid/Cetearyl Alcohol/Glycol Copolymer	Polyquaternium-29	
	Polyquaternium-30	
	Polyquaternium-31	
	Polyquaternium-32	
	Polyquaternium-33	

The above listing of film forming agents is not exhaustive and other film forming agents can also be used. Further, combinations of film forming agents can also be used.

- When one or more sunscreen agents (e.g., oxybenzone and/or
- 5 octylmethoxycinnamate) were added to a formulation comprising hydrogenated polycyclopentadiene and isohehexadecane, it was discovered that an SPF of 16 could be

achieved with relatively low levels of the sunscreen agents. While not wishing to be bound by theory, it is believed that this phenomenon may be related to the solubility properties of isohexadecane. Moreover, oxybenzone is insoluble in isohexadecane and octylmethoxycinnamate is soluble in isohexadecane. It is believed that the relative
5 solubilities of these ingredients has sufficiently shifted the action spectra of the sunscreens resulting in more efficient SPF results. This is desirable in a lotion containing sunscreens with respect to both toxicology and improved aesthetic performance.

Reflective pigments can also be incorporated into the compositions. These pigments can be titanium/mica and or iron oxide/mica blends with no additional surface
10 coating. The blend of reflective pigments employed can vary depending on the skin type of the user. The particle size of the reflective pigments can range from 4 to 75 microns.

The compositions can be oil-in-water emulsions comprising a discontinuous oil phase dispersed in a continuous aqueous phase. The compositions can also be in the form of lotions.

15 As set forth above, the compositions include various color pigments the concentrations of which can be adjusted for the skin tone of the user. For example, the compositions can include a combination of red, black and yellow pigments. Exemplary pigments include iron oxides. The pigments (e.g., iron oxides) can be surface treated. According to one embodiment, the compositions comprise iron oxide pigments surface
20 treated with a composition comprising an acrylic polymer. Compositions formulated for the lighter skin tones (e.g., Fitzpatrick I and II phototypes) can be formulated with a

pigment package which minimizes the appearance of red splotches on the skin.

Compositions formulated for intermediate skin tones (e.g., Fitzpatrick Phototype IV) can be formulated with a pigment package which highlights the natural skin color and hue of the user. Compositions formulated for the darker skin tones (e.g., Fitzpatrick Phototypes V and VI) can be formulated with a pigment package which provides enhanced sheen and luster to the skin of the user.

Exemplary pigments include iron oxides such as hydrated ferric oxide ($\text{Fe}(\text{OH})_2$), ferric oxide (Fe_2O_3), ferrosferric oxide (Fe_3O_4). As set forth above, the iron oxide pigments can be coated with a composition comprising an acrylic polymer. An exemplary acrylic polymer is an ethyl methacrylate/n-butyl acrylate/2-methylhexyl acrylate copolymer. A suitable material of this type is available from Kobo Products, Inc. The use of iron oxide pigments coated with an acrylic polymer increases the transfer resistance of the compositions.

As also set forth above, the compositions can also include reflective pigments such as mica. The mica can be coated (e.g., with titanium dioxide or iron oxide) such that the mica pigments act as light diffusers. The compositions formulated for the lighter skin tones (e.g., Fitzpatrick Phototypes I and II) can include red and silver mica pigments whereas the compositions formulated for the darker skin tones (e.g., Fitzpatrick Phototypes V and VI) can include copper, bronze and gold mica pigments. Compositions formulated for intermediate skin tones (e.g., Fitzpatrick Phototype IV) can include amber and gold mica pigments.

In preferred embodiments, the composition has a total pigment concentration, excluding mica, in a concentration selected from the group consisting of <0.09 weight percent, <0.05 weight percent, <0.01 weight percent, <0.005 weight percent, <0.001 weight percent, and <0.0005 weight percent.

Color transfer resistancy (e.g., from the skin of the user to clothing) can be further enhanced by including various polymers (e.g., film formers) in the compositions. Exemplary film forming polymers include hydrogenated polycyclopentadiene.

- Exemplary compositions for the lighter skin tones of the Fitzpatrick Skin Phototype
- 5 Scale (e.g., Types I -V) can also include one or more sunscreen agents. Exemplary sunscreen agents include but are not limited to octyl methoxycinnamate, octylsalicylate, oxybenzone and meradimate. Compositions formulated for the lighter skin tones (e.g., Fitzpatrick I and II phototypes) can also be formulated with antioxidants to reverse the effects of ultraviolet radiation as well as other insults to the skin.
- 10 Skin care compositions can also include a humectant (e.g., butylene glycol), a thickener (e.g., ammonium acryloyldimethyltaurate/vinyl pyrrolidone copolymer or hydroxyethyl acrylate/sodium acryloyldimethyl taurate copolymer), a chelating agent (e.g., disodium EDTA), a preservative (e.g., methylparaben, propyleparaben, DMDM hydantoin or combinations thereof), a non-ionic emulsifier (e.g., cetareth-20), and/or a fatty alcohol
- 15 (e.g., cetaryl alcohol, cetyl alcohol or combinations thereof).

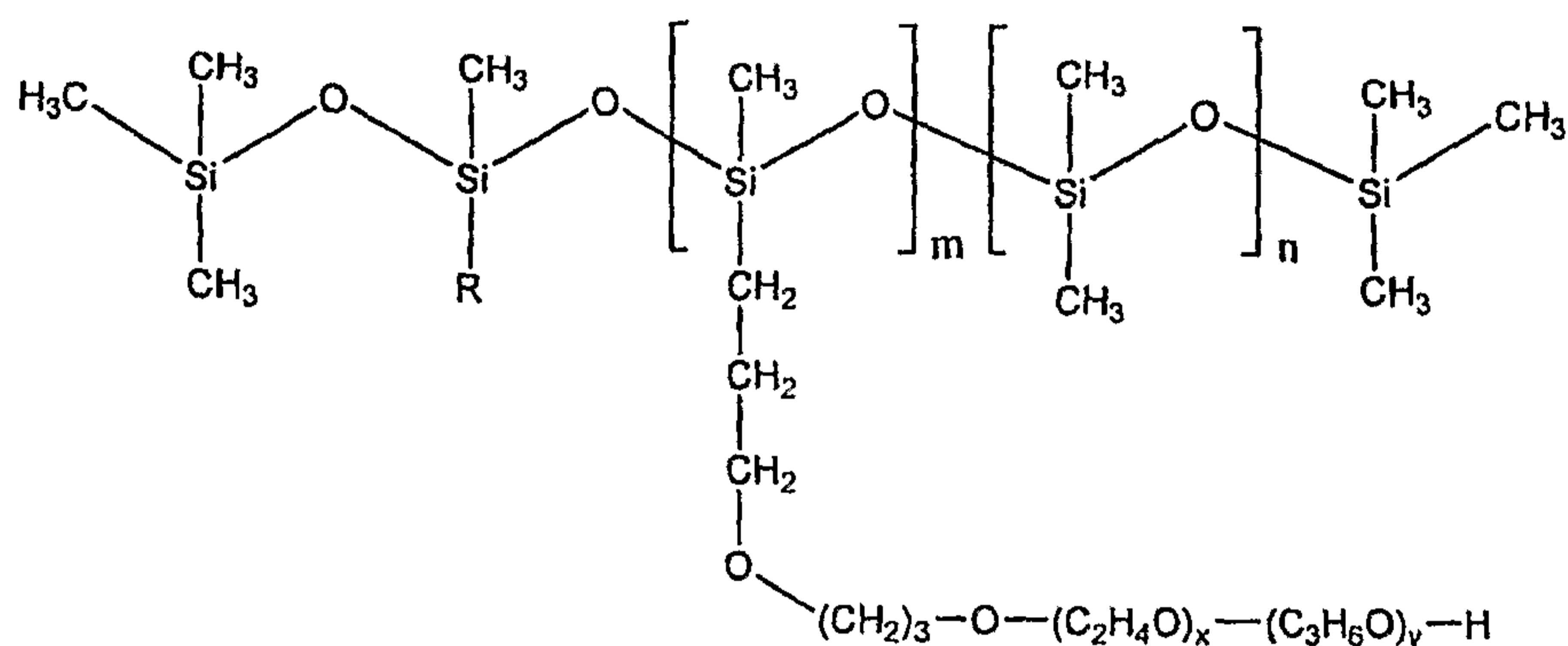
Exemplary compositions for the darker skin tones (e.g., Fitzpatrick Skin Phototypes V and VI) can also include dicaprylyl ether. An exemplary concentration of dicaprylyl ether is about 3.0 weight percent based on the total weight of the composition.

The compositions can also include a fragrance.

- 20 The compositions can also include a matifying agent. An exemplary matifying agent is a dimethicone/cyclopentasiloxane gel made by dispersing oil swellable

polydimethylsiloxane particles in a mixture of dimethicone and cyclopentasiloxane. A material of this type is available from Grant Industries and is sold under the tradename Gransil.

The compositions can include an alkylated polyether polydimethylsiloxane compound. An exemplary alkylated polyether polydimethylsiloxane compound has the following general structure:



wherein R is an alkyl group (e.g., a cetyl group) and wherein m, n, x and y are integers. A material of this type is sold under the trademark Abil® EM 90 (INCI name Cetyl PEG/PPG-10/1 Dimethicone).

The compositions can also include an emollient package. Representative emollient packages for compositions for fair skin tones (e.g., Fitzpatrick Skin Phototypes I and II), medium skin tones (e.g., Fitzpatrick Skin Phototypes II and III), tan skin tones (e.g., Fitzpatrick Skin Phototypes III-V) and deep skin tones (e.g., Fitzpatrick Skin Phototypes V and VI) are set forth in the following table.

	FAIR	MEDIUM	TAN	DEEP
Butylene Glycol	3.0%	3.0%	3.0%	3.0%
Bernel Ester DID (Diisopropyl Dimer Dilinoleate)	0.5%	0.5%	0.5%	0.5%
Finsolv TN (C12-15 Alkyl Benzopate)	3.0%	3.0	-	-
Octyldodecyl Myristate	-	-	1.5%	1.5%
Ethylhexyl Myristate	-	-	1.5%	1.5%
Shea Butter (Butyrospermum parkii)	-	-	-	5.0%

The compositions may also contain additional materials such as, for example, fragrances, fillers, preservatives, antioxidants, and emulsifiers. Exemplary emulsifiers include any of the surfactants (e.g., nonionic, anionic, cationic or zwitterionic) used to form emulsions. Suitable emulsifiers also include polymeric emulsifiers such as Pemulen[®] emulsifiers available from Noveon. These materials are crosslinked copolymers of acrylic acid and C₁₀-C₃₀ alkyl acrylate.

Exemplary compositions A, B, C, D and E are set forth in the following table.

INCI Name	CAS No.	A	B	C	D	E
		% W/W	% W/W	% W/W	% W/W	% W/W
Water	7732-18-5	q.s. to 100%	q.s. to 100%	q.s. to 100%	q.s. to 100%	q.s. to 100%
Butylene Glycol	107-88-0	3.00	3.00	3.00	3.00	3.00
Ammonium Acryloyldimethyltaurate/VP Copolymer	Proprietary	0.35	0.35	0.35	0.35	0.35
Disodium EDTA	006381-92-6	0.05	0.05	0.05	0.05	0.05
Methylparaben	99-76-3	0.20	0.20	0.20	0.20	0.20
Propylparaben	94-13-3	0.1	0.10	0.10	0.10	0.10
Cetearyl Alcohol	8005-44-5; 67762-27-0; 67762-30-5	3.5	3.5	3.5	3.5	3.5
Ceteareth-20	68439-49-6	0.5	0.5	0.5	0.5	0.5
Cetyl Alcohol	36653-82-4	0.5	0.5	0.5	0.5	0.5
Glyceryl Stearate & PEG 100 Stearate	123-94-4; 11099-07-3; 31566-31-1; 85666-92-8; 9004-99-3	3.5	3.5	3.5	3.5	3.5
Dicaprylyl Ether	629-82-3	---	---	---	3.0	---
Cetyl PEG/PPG-10/1 Dimethicone	Proprietary	0.4	0.4	0.4	---	0.4
Diisopropyl Dimer Dilinoleate	103213-20-3	0.5	0.5	0.5	---	0.5
C12-15 Alkyl Benzoate	68411-27-8	3.0	3.00	3.00	---	3.00
Polydimethylsiloxane	63148-62-9	0.75	0.75	0.75	0.75	0.75
Octinoxate (Octyl Methoxycinnamate)	5466-77-3	7.5	7.5	6.5	---	6.5
Octisalate (Octylsalicylate)	118-60-5	4.0	4.0	---	---	---
Oxybenzone (Benzophenone 3)	131-57-7	3.0	3.0	---	---	---
Meradimate	134-09-8	---	---	5.0	---	5.0
Montmorillonite, Water, Picea Excelsa Extract, Titanium Dioxide	1318-93-0; 7732-18-5; 91770-69-3; 13463-67-7	---	---	---	---	1.0
DMDM Hydantoin	6440-58-0	0.4	0.4	0.4	0.4	0.4
Hydrogenated Polycyclopentadiene (and) Isododecane	68132-00-3; 141-70-8	2.5	2.5	2.5	2.5	2.5
Isohexadecane	4390-04-9	4.5	4.5	4.5	4.5	4.5
Dimethicone (and) Cyclopentasiloxane (and) Polysilicone-11	9006-65-9; 541-02-6; 63394-02-5	0.3	0.3	0.3	0.3	0.3
Water (and) Acrylates/Ethylhexyl Acrylate Copolymer (and) Iron Oxide (C.I. 77492) (and) Sodium Acrylate/Sodium Acryloyldimethyl Taurate Copolymer (and) Aminomethyl Propanol	7732-18-5; 42398-14-1; 20344-49-4; 77019-71-1; 20344-49-4; 124-68-5	0.05	0.05	0.05-0.6	0.05-0.6	0.05
Water (and) Ethyl Methacrylate/N-Butyl Acrylate/2-Methylhexyl Acrylate Copolymer (and) Ferric Oxide (and) Sodium Acryloyldimethyl Taurate Copolymer (and) 2-Amino-2-Methyl-1-Propanol	7732-18-5; 42398-14-1; 1309-37-1; 7709-71-7; 124-68-5	0.02	0.02	0.02-0.6	0.02-0.6	0.02
Water (and) Acrylates/Ethylhexyl Acrylate Copolymer (and) Iron Oxide (C.I. 77499) (and) Sodium Acrylate/Sodium Acryloyldimethyl Taurate Copolymer (and) Aminomethyl Propanol	7732-18-5; 42398-14-1; 1317-61-9; 77019-71-7	0.01	0.01	0.01-0.6	0.01-0.6	0.01
Mica (and) titanium dioxide	12001-26-2; 13463-67-7	0.1	0.1	---	---	0.1
Titanium dioxide (and) mica	12001-26-2; 13463-67-7	0.05	0.05	---	---	0.05
Stryene/Acrylates Copolymer	Proprietary; 1336-21-6; 7732-18-5	---	1.0-3.0	---	---	---
Titanium Dioxide, Mica, Iron Oxide(s)	12001-26-2; 13463-67-7; 13097-37-1; 1309-38-2; 1317-61-9; 1332-37-2; 1345-25-1; 12227-89-3; 20344-49-4; 51274-00-1; 52357-70-7; 64294-91-3	0-0.6	0-0.6	0-0.6	0-0.6	0-0.6

As can be seen from the above table, each of the compositions includes a plurality of pigments (i.e., iron oxides treated with an acrylic polymer), a water-in-oil emulsifier, and an emollient package.

Compounding Procedure

An exemplary compounding procedure is described below.

The aqueous phase is heated to a temperature over 70° C (e.g., 75-78° C). The water phase can include water, butylene glycol, Disodium EDTA, Aristoflex AVC and
5 propyl paraben and methylparaben.

The oil phase is heated to about 80° C. The oil phase can include glyceryl stearate & PEG 100 stearate, cetearyl alcohol, cetareth-20, cetyl alcohol, Cetyl PEG/PPG10-1 Dimethicone, Bernel ester DID, Shea butter, octyl myristate, ethylhexyl isononate, and
10 C12-15 alkyl benzoate.

After the oil phase is added to the aqueous phase at the above temperatures and the resulting mixture is cooled to about 50-55° C, the iron oxide pigments are added. The iron oxide pigments can be pre-mixed in water. Pre-mixing in water can help to further hydrate the polymer to minimize polymer specs in the final batch.

The silicone/polymer/silicone elastomer/solvent phase is premixed at room temp.

15 This phase can include Koboguard 5400 IDD, Permethyl 101A, Dimethicone 200 5 CS, and Gransil KO.

This phase is added at a temperature at or below 55° C (e.g., 50-55° C) after the emulsion has formed. In this manner, reduced pigment transfer as well as a unique feel of the formulation can be achieved.

20 After the above is well mixed, the mica effect colors can be added (e.g., at a temperature of 45-50° C), followed by the DMDM Hydantoin (a preservative) and the fragrance (e.g., at a temperature of 40° C).

Additional Exemplary Compositions

Additional exemplary compositions for fair skin tones (e.g., Fitzpatrick Phototypes I and II), medium skin tones (e.g., Fitzpatrick Phototypes II and III), tan skin tones (e.g., Fitzpatrick Phototypes III - V), and deep skin tones (e.g., Fitzpatrick Phototypes V and VI) are described below.

Exemplary Composition for Fair Skin Tones

An exemplary composition for fair skin tones is set forth in the following table.

PART	DESCRIPTION	% wt.
A	Deionized Water	57.970%
	Butylene Glycol	3.000%
	Disodium EDTA	0.050%
	Aristoflex AVC (ammonium acryloyldimethyltaurate/VP copolymer)	0.350%
	Propylparaben NF	0.100%
	Methylparaben	0.200%
B1	Glyceryl Stearate & PEG 100 Stearate	3.500%
	Cetearyl Alcohol	3.500%
	Ceteareth-20	0.500%
	Cetyl Alcohol	0.500%
	Abil EM-90 (Cetyl PEG/PPG-10/1 Dimethicone)	0.400%
	Bernel Ester DID (Diisopropyl Dimer Dilinoleate)	0.500%
B2	Finsolv TN (C12-15 Alkyl Benzoate)	3.000%
	Octyl Methoxycinnamate/Esc 557	3.750%
	Octyl Salicylate/Esc 587	2.000%
	Oxybenzone/Esc 567	1.500%
C	Deionized Water	4.000%
	Iron Oxide (Kobo Yellow WSJ20EYAMP)	0.050%
	Iron Oxide (Kobo Red WSJ22ERAMP)	0.020%
	Iron Oxide (Kobo Black)	0.010%
	Deionized Water (Rinse)	1.000%

PART	DESCRIPTION	% wt.
D	Koboguard 5400 IDD (Hydrogenated Polycyclopentadiene and Isododecane)	2.500%
	Permethyl 101A (isohexadecane)	4.500%
	Dimethicone 200 5 CS	0.750%
	Gransil KO (dimethicone and cyclopentasiloxane and polysilicone-11)	0.300%
E	Deionized Water	4.000%
	KTZ Interference Red	0.100%
	KTZ Fine White	0.050%
	Deionized Water (Rinse)	1.000%
F	DMDM Hydantoin	0.400%
	Fragrance	0.500%
		100.00%

The above composition can be made by a procedure as set forth below.

1. Into a beaker weigh out the pigments in Part C and begin mixing.
2. Into a separate beaker, weigh out deionized water and butylene glycol in Part A and begin mixing. Sift in the Aristoflex slowly. Once all the polymer has been added, add
5 the Disodium EDTA and begin heating to 75° C.
3. Weigh out Part B1 and heat to 80° C. Weigh out Part B2 and heat to 70° C until clear. Add Part B2 to Part B1 to make Part B.
4. Add Part B to Part A and mix for 10 minutes at 75° C - 80° C.
5. After ten minutes, begin cooling the mixture of Part A and Part B to 55° C. At
10 55° C or below add the pigment mixture (Part C), followed by the water rinse.
6. Weigh out Part D into a separate beaker and mix well. Once the mixture of Parts A, B and C has cooled to 45° C, add Part D.

7. Weigh out the mica slurry (Part E) into a separate beaker. Add Part E, to the mixture of Parts A, B, C and D at 40 - 45° C.

8. Add the fragrance and DMDM in Part F individually to the mixture of Parts A, B, C, D and E at 40-45° C.

5 Exemplary Composition for Medium Skin Tones

An exemplary composition for medium skin tones is set forth in the following table.

PART	DESCRIPTION	% wt.
A	Deionized Water	64.965%
	Butylene Glycol	3.000%
	Disodium EDTA	0.050%
	Aristoflex AVC (ammonium acryloyldimethyltaurate/VP copolymer)	0.350%
	Propylparaben NF	0.100%
	Methylparaben	0.200%
B	Glyceryl Stearate & PEG 100 Stearate	3.500%
	Cetearyl Alcohol	3.500%
	Ceteareth-20	0.500%
	Cetyl Alcohol	0.500%
	Abil EM-90 (Cetyl PEG/PPG-10/1 Dimethicone)	0.400%
	Bernel Ester DID (Diisopropyl Dimer Dilinoleate)	0.500%
	Finsolv TN (C12-15 Alkyl Benzoate)	3.000%
C	Deionized Water	4.000%
	Iron Oxide (Kobo Yellow WSJ20EYAMP)	0.040%
	Iron Oxide (Kobo Red WSJ22ERAMP)	0.018%
	Iron Oxide (Kobo Black)	0.007%
	Deionized Water (Rinse)	1.000%

PART	DESCRIPTION	% wt.
D	Koboguard 5400 IDD (Hydrogenated Polycyclopentadiene and Isododecane)	2.500%
	Permethyl 101A (isohexadecane)	4.500%
	Dimethicone 200 5 CS	0.750%
	Gransil KO (dimethicone and cyclopentasiloxane and polysilicone-11)	0.300%
E	Deionized Water	4.000%
	Timica Silkwhite 110W (Mica and Titanium Dioxide)	0.120%
	Gemtone Amber G001 (Mica and Titanium Dioxide and Iron Oxides)	0.100%
	Gemtone Tan Opal (Mica and Titanium Dioxide and Iron Oxides)	0.100%
	Desert Ref. Sunlit Cactus 862Z	0.100%
	Deionized Water	1.000%
F	DMDM Hydantoin	0.400%
	Fragrance	0.500%
		100.000%

The above composition can be made by a procedure as set forth below.

1. Into a beaker weigh out the pigments in Part C and begin mixing.
2. Into a separate beaker, weigh out deionized water and Butylene glycol in Part A and begin mixing. Sift in the Aristoflex slowly. Once all the polymer has been added, add the Disodium EDTA and begin heating to 75° C.
3. Weigh out Part B and heat to 80° C.
4. Add Part B to Part A and mix for 10 minutes at 75° C - 80° C.
5. After ten minutes, begin cooling the mixture of Parts A and B to 55° C. At 55° C or below, add the pigment mixture (Part C), followed by the water rinse.
6. Weigh out Part D into a separate beaker and mix well. Once the mixture of Parts A, B and C has cooled to 45° C, add Part D.

7. Weigh out the mica slurry (Part E) into a separate beaker. Add Part E, to the mixture of Parts A, B, C and D at 40 - 45° C.

8. Add the fragrance and DMDM in Part F individually to the mixture of Parts A, B, C, D and E at 40-45° C.

5 Exemplary Composition for Tan Skin Tones

An exemplary composition for tan skin tones is set forth in the following table.

PART	DESCRIPTION	% wt.
A	Deionized Water	65.178%
	Butylene Glycol	3.000%
	Disodium EDTA	0.050%
	Aristoflex AVC (ammonium acryloyldimethyltaurate/VP copolymer)	0.350%
	Propylparaben NF	0.100%
	Methylparaben	0.200%
B	Glyceryl Stearate & PEG 100 Stearate	3.500%
	Cetearyl Alcohol	3.500%
	Ceteareth-20	0.500%
	Cetyl Alcohol	0.500%
	Abil EM-90 (Cetyl PEG/PPG-10/1 Dimethicone)	0.400%
	Bernel Ester DID (Diisopropyl Dimer Dilinoleate)	0.500%
	Octyldodecyl Myristate	1.500%
	Ethylhexyl Isonoate	1.500%
C	Deionized Water	4.000%
	Iron Oxide (Kobo Yellow WSJ20EYAMP)	0.030%
	Iron Oxide (Kobo Red WSJ22ERAMP)	0.015%
	Iron Oxide (Kobo Black)	0.007%
	Deionized Water (Rinse)	1.000%

PART	DESCRIPTION	% wt.
D	Koboguard 5400 IDD (Hydrogenated Polycyclopentadiene and Isododecane)	2.500%
	Permethyl 101A (isohexadecane)	4.500%
	Dimethicone 200 5CS	0.750%
	Gransil KO (dimethicone and cyclopentasiloxane and polysilicone-11)	0.300%
E	Deionized Water	4.000%
	Gemtone Amber G001 (Mica and Titanium Dioxide and Iron Oxides)	0.350%
	KTZ Interfine Gold [Mica and Titanium Dioxide (CI 77891) and Tin oxide and Triethoxy Caprylylsilane]	0.070%
	Deionized Water	1.000%
F	DMDM Hydantoin	0.400%
	Fragrance	0.300%
		100.000%

The above composition can be made by a procedure as set forth below.

1. Into a beaker weigh out the pigments in Part C and begin mixing.
2. Into a separate beaker, weigh out deionized water and Butylene glycol in Part A and begin mixing. Sift in the Aristoflex slowly. Once all the polymer has been added, add
- 5 the Disodium EDTA and begin heating to 75° C.
3. Weigh out Part B and heat to 80° C.
4. Add Part B to Part A and mix for 10 minutes at 75° C - 80° C.
5. After ten minutes, begin cooling the mixture of Parts A and B to 55° C. At 55° C or below add the pigment mixture (Part C), followed by the water rinse.
- 10 6. Weigh out Part D into a separate beaker and mix well. Once the mixture of Parts A, B and C has cooled to 45° C, add Part D.

7. Weigh out the mica slurry (Part E) into a separate beaker. Add Part E to the mixture of Parts A, B, C and D at 40 - 45° C.

8. Add the fragrance and DMDM in Part F individually to the mixture of Parts A, B, C, D and E at 40 - 45° C.

5 Exemplary Composition for Deep Skin Tones

An exemplary composition for deep skin tones is set forth in the following table.

PART	DESCRIPTION	% wt.
A	Deionized Water	60.185%
	Butylene Glycol	3.000%
	Disodium EDTA	0.050%
	Aristoflex AVC (ammonium acryloyldimethyltaurate/VP copolymer)	0.350%
	Propylparaben NF	0.100%
	Methylparaben	0.200%
B	Glyceryl Stearate & PEG 100 Stearate	3.500%
	Cetearyl Alcohol	3.500%
	Ceteareth-20	0.500%
	Cetyl Alcohol	0.500%
	Abil EM-90 (Cetyl PEG/PPG-10/1 Dimethicone)	0.400%
	Bernel Ester DID (Diisopropyl Dimer Dilinoleate)	0.500%
	Butyrospermum parkii (Shea butter)	5.000%
	Octyldodecyl Myristate	1.500%
	Ethylhexyl Isonoate	1.500%
C	Deionized Water	4.000%
	Iron Oxide (Kobo Yellow WSJ20EYAMP)	0.120%
	Iron Oxide (Kobo Red WSJ22ERAMP)	0.068%
	Iron Oxide (Kobo Black)	0.027%
	Deionized Water	1.000%

PART	DESCRIPTION	% wt.
D	Koboguard 5400 IDD (Hydrogenated Polycyclopentadiene and Isododecane)	2.500%
	Permethyl 101A (isohexadecane)	4.500%
	Dimethicone 200 5CS	0.750%
	Gransil KO (dimethicone and cyclopentasiloxane and polysilicone-11)	0.300%
E	Deionized Water	4.000%
	Cloisonne Monarch Gold 233X	0.100%
	Cloisonne Nu Antique Copper 340XB	0.050%
	Cloisonne Satin Bronze	0.050%
	Deionized Water	1.000%
F	DMDM Hydantoin	0.400%
	Fragrance	0.35%
		100.00%

The above composition can be made by a procedure as set forth below.

1. Into a beaker weigh out the pigments in Part C and begin mixing.
2. Into a separate beaker, weigh out deionized water and Butylene glycol in Part A and begin mixing. Sift in the Aristoflex slowly. Once all the polymer has been added, add the Disodium EDTA and begin heating to 75° C.
3. Weigh out Part B and heat to 80° C.
4. Add Part B to Part A and mix for 10 minutes at 75° C - 80° C.
5. After ten minutes, begin cooling the mixture of Parts A and B to 55° C. At 55° C or below add the pigment mixture (Part C), followed by the water rinse.
6. Weigh out Part D into a separate beaker and mix well. Once the mixture of Parts A, B and C has cooled to 45° C, add Part D.
7. Weigh out the mica slurry (Part E) into a separate beaker. Add Part E, to the mixture of Parts A, B, C and D at 40 - 45° C.

8. Add the fragrance and DMDM in Part F individually to the mixture of Parts A, B, C, D and E at 40 - 45°C.

Second Additional Exemplary Composition for Fair Skin Tones

A second additional exemplary composition for fair skin tones is set forth below.

PART	DESCRIPTION	% wt.	Target Wt. (g)
A	Deionized Water	63.040%	630.4000
	Butylene Glycol	3.000%	30.0000
	Disodium EDTA	0.050%	0.5000
	Propylparaben NF	0.100%	1.0000
	Methylparaben	0.200%	2.0000
B	Glyceryl Stearate & PEG 100 Stearate	3.500%	35.0000
	Cetearyl Alcohol	3.500%	35.0000
	Ceteareth-20	0.500%	5.0000
	Cetyl Alcohol	0.500%	5.0000
	Cetyl PEG/PPG10-1 Dimethicone	0.400%	4.0000
	Diisopropyl Dimer Dilinoleate	0.500%	5.0000
	Isopropyl Palmitate	1.000%	10.0000
	C12-15 Alkyl Benzoate/Finsolv TN	2.000%	20.0000
	Ammonium Acryloyldimethyltaurate/VP Copolymer	0.350%	3.5000
	Titanium Dioxide (and) Stearic Acid (and) Alumina	1.500%	15.0000
BHT FCC	0.020%	0.2000	
C	Hydrogenated Polycyclopentadiene	2.500%	25.0000
	Isohexadecane	4.500%	45.0000
	Dimethicone 200 (5CST)	1.000%	10.0000
	Gransil KO	0.300%	3.0000
D	Deionized Water	4.000%	40.0000
	Diazolidinyl Urea	0.100%	1.0000
	Kobo Yellow WSJ20EYAMP	0.050%	0.5000
	Kobo Red WSJ22ERAMP	0.020%	0.2000
	Kobo Black	0.010%	0.1000
	Deionized Water (Rinse)	1.000%	10.0000

PART	DESCRIPTION	% wt.	Target Wt. (g)
E	Deionized Water	4.000%	40.0000
	Titanium Dioxide (and) Mica	0.340%	3.4000
	Titanium Dioxide (and) Mica	0.170%	1.7000
	Deionized Water	1.000%	10.0000
F	DMDM Hydantoin	0.400%	4.0000
G	Fragrance	0.450%	4.5000
		100.00%	1000.000

The above composition can be made by a procedure as set forth below.

1. In a container, weigh out the pigments in Part D and begin mixing (e.g., using a lightning mixer).
2. Into a separate container, weigh out deionized water and butylene glycol in Part A and begin heating to 75° C. Add Disodium EDTA and parabens at ~ 50° C - 60° C.
3. Weigh out Part B into a separate container and heat to 80° C. After the oil phase has melted down, add Ammonium Acryloyldimethyltaurate/VP Copolymer and disperse with moderate mixing (e.g., using a lightning mixer). After the polymer has been dispersed, add the TiO₂ powder and mix for 5-10 minutes until completely dispersed.
4. Once Part A has reached 75° C, add Part B and mix for 10 minutes at 75° C-80° C. Increase agitation and mix for five minutes to ensure good emulsification.
5. After five minutes, begin cooling the mixture of Parts A and B to 55° C.
6. Weigh out Part C into a separate beaker and mix well (e.g., using a lightning mixer). Once the mixture of Parts A and B has cooled to 55° C, add Part C to the mixture of Parts A and B.
7. After ten minutes, add Part D to the mixture of Parts A, B and C at 55° C-50° C.

8. Weigh out the mica slurry (Part E) into a separate beaker. Add Part E, to the mixture of Parts A, B, C and D at 50-45° C.

9. Add the fragrance and DMDM in Parts F and G individually to the mixture of Parts A, B, C, D and E at 40° C.

5 *Third Additional Exemplary Compositions for Fair Skin Tones*

A third additional exemplary composition for fair skin tones is set forth below.

PART	DESCRIPTION	% wt.	Target Wt. (g)
A	Deionized Water	59.641%	596.4000
	Butylene Glycol	3.000%	30.0000
	Disodium EDTA	0.050%	0.5000
	Propylparaben NF	0.100%	1.0000
	Methylparaben NF	0.200%	2.0000
B	Glyceryl Stearate & PEG 100 Stearate	2.000%	20.0000
	Cetearyl Alcohol	2.500%	25.0000
	Ceteareth-20	1.500%	15.0000
	Cetyl Alcohol NF	0.500%	5.0000
	Cetyl PEG/PPG10-1 Dimethicone	0.400%	4.0000
	Diisopropyl Dimer Dilinoleate	0.500%	5.0000
	Dicaprylyl Ether	2.000%	20.0000
	Petrolatum White USP	3.500%	35.0000
	Silica	1.667%	16.6700
	BHT FCC	0.020%	0.2000
	Ammonium Acryloyldimethyltaurate/VP Copolymer (Aristoflex AVC)	0.500%	5.0000
C	Hydrogenated Polycyclopentadiene	2.000%	20.0000
	Isohexadecane	3.600%	36.0000
	Dimethicone 200 CST	1.000%	10.0000
	Gransil KO	0.300%	3.0000

D	Deionized Water	4.000%	40.0000
	Diazolidinyl Urea	0.100%	1.0000
	WSJ28PFAMP	3.333%	33.3300
	Kobo Yellow WSJ20EYAMP	0.150%	1.5000
	Kobo Red WSJ22ERAMP	0.060%	0.6000
	Kobo Black	0.030%	0.3000
	Deionized Water (Rinse)	1.000%	10.0000
E	Deionized Water	4.000%	40.0000
	Titanium Dioxide (and) Mica	0.330%	3.3000
	Titanium Dioxide (and) Mica	0.170%	1.7000
	Deionized Water	1.000%	10.0000
F	DMDM Hydantoin	0.400%	4.0000
G	Fragrance	0.450%	4.5000
		100.00%	1000.000

The above composition can be made by a procedure as set forth below.

1. Into a beaker weigh out the pigments in Part D and begin mixing (e.g., using a lightning mixer).
2. Into a separate beaker, weigh out deionized water and Butylene glycol in Part A and begin heating to 75° C. Add Disodium EDTA and parabens at ~ 50° C-60° C.
3. Weigh out Part B into a separate beaker and heat to 80° C. After oil phase has melted down, add Ammonium Acryloyldimethyltaurate/VP Copolymer and disperse with moderate mixing (e.g., using a lightning mixer) for 5-10 min. After all the polymer has been dispersed, add the silica and disperse for 5-10 min.
4. Once Part A has reached 75° C, add Part B and mix for 10 minutes at 75° C-80° C. Increase agitation and mix for five minutes to ensure good emulsification.
5. After five minutes, begin cooling the mixture of Parts A and B to 55° C.

6. Weigh out Part C into a separate beaker and mix well using a lightning mixer.
- Once the mixture of Parts A and B has cooled to 55° C, add Part C to the mixture of Parts A and B.
7. After ten minutes, add Part D to the mixture of Parts A, B and C at 55° C-50° C.
- 5 8. Weigh out the mica slurry (Part E) into a separate beaker. Add Part E, to the mixture of Parts A, B, C and D at 50° C-45° C.
9. Add the fragrance and DMDM in Parts F and G individually to the mixture of Parts A, B, C, D and E at 40° C.

Second Additional Exemplary Composition for Medium Skin Tones

- 10 A second additional exemplary composition for medium skin tones is set forth below.

PART	DESCRIPTION	% wt.	Target Wt.(g)
A	Deionized Water	66.38600%	663.86
	Propylparaben NF	0.10000%	1.00
	Methylparaben	0.20000%	2.00
B	Glycerin USP	6.00000%	60.00
	Xanthan Gum	0.10000%	1.00
C	Cetearyl Alcohol	4.00000%	40.00
	Ceteareth-20	1.25000%	12.50
	Petrolatum White	2.00000%	20.00
	Mineral Oil Light NF	0.75000%	7.50
	C12-15 Alkyl Benzoate	0.75000%	7.50
	Octyldodecyl Myristate	0.30000%	3.00
	Ethylhexyl Isononanoate	0.50000%	5.00
	Cetyl Esters Wax NF	0.00000%	-
	Glyceryl Stearate & PEG-100 Stearate	0.50000%	5.00
	Hydroxyethyl Acrylate/Sodium Acryloyldimethyl Taurate Copolymer (Sepinov EMT)	0.65000%	6.50
Polypropylene (Mattewax 511)	1.66000%	16.60	
D	Dimethicone (10 CST)	1.25000%	12.50

E	Deionized Water	4.00000%	40.00
	WSJ28PFAMP	2.50000%	25.00
	WSJ22EYAMP - Kobo Yellow	0.16000%	1.60
	WSJ22ERAMP - Kobo Red	0.03000%	0.30
	WSJ20EBAMP - Kobo Black	0.01400%	0.14
	Deionized Water	1.00000%	10.00
F	Deionized Water	3.00000%	30.00
	Mica (and) Titanium Dioxide (and) Iron Oxides	0.75000%	7.50
	Mica (and) Iron Oxides (and) Titanium Dioxides	0.25000%	2.50
	Deionized Water	1.00000%	10.00
G	DMDM Hydantoin	0.40000%	4.00
H	Fragrance	0.50000%	5.00
		100.00000%	1,000.00

The above composition can be made by a procedure as set forth below.

1. Weigh out Part A into a container and begin heating to 75° C-80° C. Begin dispersing the Xanthun Gum (Part B) in the Glycerin and add to Part A. Heat the mixture of Parts A and B to 75° C-80° C.
- 5 2. Weigh out Part C and begin heating to 80° C. Once the oil phase has melted, add Sepinov EMT and begin mixing with moderate agitation for 5-10 min. until thoroughly dispersed. Next, add in the Mattewax 511 and mix for 5-10 min. until dispersed.
- 10 3. Add Part C to the mixture of Parts A and B once the mixture of Parts A and B has reached 75° C-80° C. Increase agitation and mix for five minutes to ensure good emulsification.
4. After five minutes, begin cooling the mixture of Parts A, B and C to 60° C.

5. Weigh out Part D into a separate container and add to the mixture of Parts A, B and C at 60° C.

6. Weigh out Part E into a separate container and begin mixing (e.g., using a lightning mixer). At about 55° C, add Part E to the mixture of Parts A, B, C and D.

5 7. Weigh out and add Parts F, G, and H individually to the mixture of Parts A, B, C and D.

The scope of the claims should not be limited by the preferred embodiments set forth in the examples, but should be given the broadest interpretation consistent with the description as a whole.

CLAIMS:

1. A cosmetic composition for application to the skin comprising:
 one or more pigments coated with a composition comprising an acrylic
 polymer;
 5 an emulsifier;
 optionally, one or more emollients; and
 optionally, one or more organic sunscreen agents;
 wherein each of the one or more pigments is present in the composition at a
 concentration such that the composition, when applied to the skin of a user, imparts a
 10 pigment to the skin which masks skin imperfections and imparts a more uniform
 tone to the skin;

wherein the one or more pigments are selected from the group consisting of
 hydrated ferric oxide ($\text{Fe}(\text{OH})_2$), ferric oxide (Fe_2O_3), ferrosferric oxide (Fe_3O_4) and
 combinations thereof; or

15 wherein the acrylic polymer comprises an ethyl methacrylate/n-butyl
 acrylate/2-methylhexyl acrylate copolymer.

2. The composition of Claim 1, wherein the composition imparts a tone
 to the skin which corresponds to the unexposed skin color of one of the Fitzpatrick
 skin phototypes I-VI.

20 3. The composition of Claim 1, wherein the composition further
 comprises a film forming agent.

4. The composition of Claim 3, wherein the film forming agent
 comprises hydrogenated polycyclopentadiene.

25 5. The composition of Claim 4, wherein the composition further
 comprises isohehexadecane.

6. The composition of Claim 5, wherein the composition comprises one or more organic sunscreen agents.

7. The composition of Claim 6, wherein the one or more organic sunscreen agents are selected from the group consisting of oxybenzone, octylmethoxycinnamate and combinations thereof.

8. The composition of Claim 1, wherein the composition further comprises a reflective pigment.

9. The composition of Claim 8, wherein the reflective pigment comprises mica particles.

10. The composition of Claim 9, wherein the mica particles comprise mica particles coated with iron oxide and/or mica particles coated with titanium dioxide.

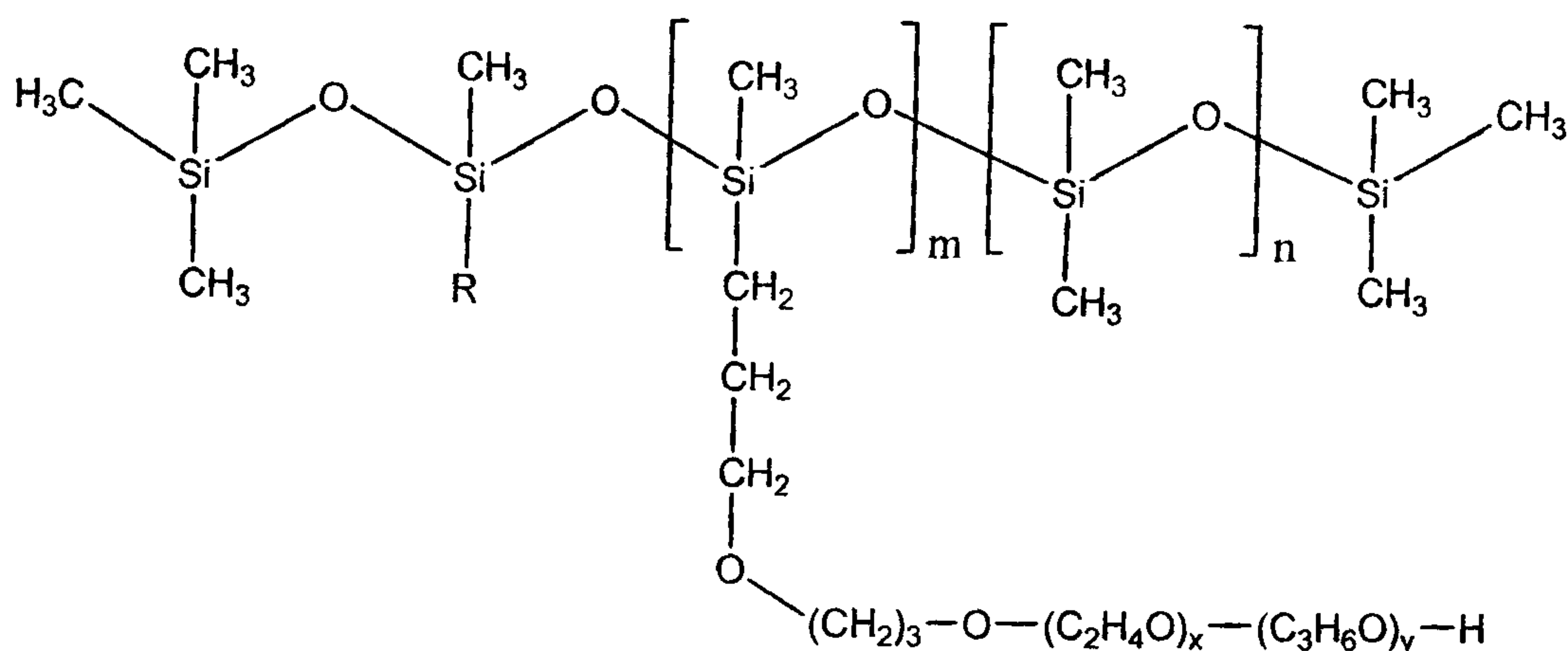
11. The composition of Claim 1, wherein the total pigment concentration of the composition, excluding mica, is a concentration selected from the group consisting of: <0.09 weight percent, <0.05 weight percent, <0.01 weight percent, <0.005 weight percent, <0.001 weight percent, and <0.0005 weight percent.

12. The composition of Claim 1, wherein the composition further comprises butylene glycol, diisopropyl dimer dilinoleate, and a C₁₂₋₁₅ alkyl benzoate.

13. The composition of Claim 1, wherein the composition further comprises butylene glycol, diisopropyl dimer dilinoleate, octyldodecyl myristate and ethylhexyl myristate.

14. The composition of Claim 1, wherein the composition further comprises butylene glycol, diisopropyl dimer dilinoleate, octyldodecyl myristate, ethylhexyl myristate and shea butter.

5 15. The composition of Claim 1, further comprising a siloxane compound having the following general structure:



wherein R is an alkyl group and wherein m, n, x and y are integers.

16. The composition of Claim 15, wherein R is a cetyl group.

10 17. The composition of Claim 15, wherein the composition comprises less than 1 weight % of the siloxane compound.

18. The composition of Claim 15, wherein the composition comprises less than 0.5 weight % of the siloxane compound.

15 19. The composition of Claim 1, wherein the emulsifier is selected from the group consisting of glyceryl stearate, PEG-100 stearate, cetearyl alcohol, cetareth-20 and combinations thereof.

20. A method comprising applying a cosmetic composition as set forth in Claim 1 to the skin.

21. A method of making an oil-in-water emulsion comprising:
5 mixing an aqueous phase with an oil phase comprising an oil-in-water emulsifier and, optionally, one or more emollients at a temperature greater than 70° C;
cooling the resulting mixture;
10 mixing one or more pigments coated with an acrylic polymer into the resulting mixture at a temperature at or below 60° C; and
mixing hydrogenated polycyclopentadiene and isohexadecane into the resulting mixture at a temperature at or below 55° C;
wherein the pigments are selected from the group consisting of hydrated ferric oxide (FeHO₂), ferric oxide (Fe₂O₃), ferrosferric oxide (Fe₃O₄) and
15 combinations therefor or
wherein the acrylic polymer comprises an ethyl methacrylate/n-butyl acrylate/2-methylhexyl acrylate copolymer.

22. The method of Claim 21, further comprising mixing one or more reflective pigments into the mixture subsequent to mixing hydrogenated
20 polycyclopentadiene and isohexadecane into the resulting mixture.

23. The method of Claim 21, wherein the aqueous phase, prior to mixing with the oil phase, comprises butylene glycol and an ammonium acryloyldimethyltaurate/vinyl pyrrolidone copolymer.

24. The method of Claim 21, wherein the pigments include hydrated
25 ferric oxide (FeHO₂), ferric oxide (Fe₂O₃), ferrosferric oxide (Fe₃O₄).

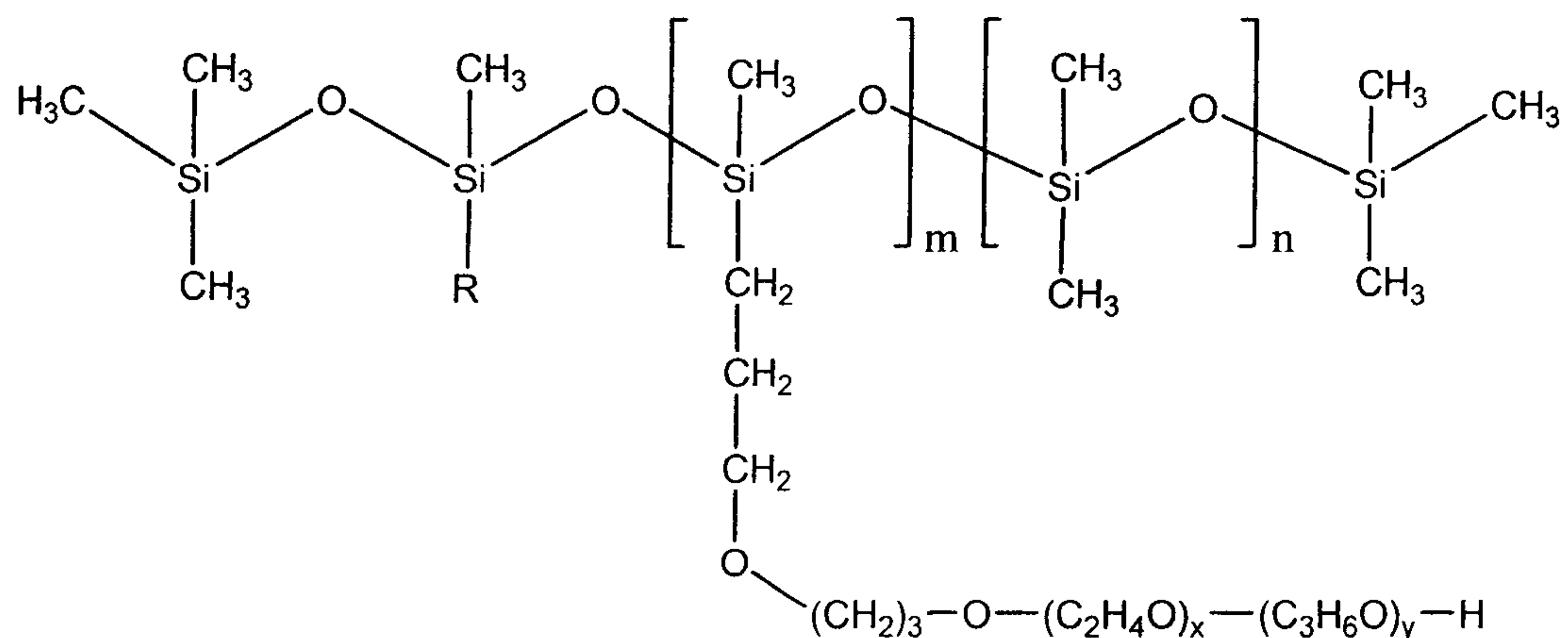
25. The method of Claim 21, wherein the acrylic polymer comprises an ethyl methacrylate/n-butyl acrylate/2-methylhexyl acrylate copolymer.

26. The method of Claim 22, wherein the reflective pigments comprise mica particles.

5 27. The method of Claim 26, wherein the mica particles comprise mica particles coated with iron oxide and/or mica particles coated with titanium dioxide.

28. The method of Claim 21, wherein the oil-in-water emulsifier is selected from the group consisting of glyceryl stearate, PEG-100 stearate, cetearyl alcohol, cetareth-20 and combinations thereof.

10 29. The method of Claim 21, wherein the oil phase further comprises, prior to mixing with the aqueous phase, a compound having the following general structure:



wherein R is an alkyl group and wherein m, n, x and y are integers.

15 30. The method of Claim 29, wherein R is a cetyl group.

31. The method of Claim 29, wherein the emulsion comprises less than 1 weight % of the siloxane compound.

32. The method of Claim 29, wherein the emulsion comprises less than 0.5 weight % of the siloxane compound.

5 33. The method of Claim 21, wherein the oil phase further comprises, prior to mixing with the aqueous phase, one or more emollients selected from the group consisting of diisopropyl dimer dilinoleate, C₁₂₋₁₅ alkyl benzoates, octyldodecyl myristate, ethylhexyl myristate, shea butter and combinations thereof.

10 34. The method of Claim 21, wherein the pigments are mixed into the resulting mixture as a water dispersion.

35. The method of Claim 21, wherein the pigments are mixed into the resulting mixture at a temperature of 53° C - 57° C.

15 36. The method of Claim 21, wherein the hydrogenated polycyclopentadiene and isohexadecane are mixed into the resulting mixture at a temperature of 50° C - 55° C.

37. The composition of Claim 1, wherein the composition comprises one or more emollients.

20 38. The method of Claim 21, wherein the oil phase comprises one or more emollients prior to mixing with the aqueous phase.