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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
29 November 2018 (29.11.2018)

WIPO | PCT

(10) International Publication Number
WO 2018/214148 A1

(51) International Patent Classification:
A45D 33/00 (2006.01)

(21) International Application Number:
PCT/CN2017/086096

(22) International Filing Date:
26 May 2017 (26.05.2017)

(25) Filing Language: English

(26) Publication Language: English

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,

(54) Title: COSMETIC SUBSTRATE COMPRISING CRIMPED FIBERS

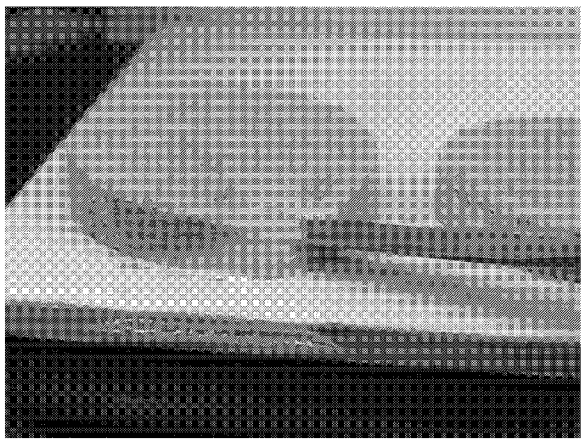


FIG 2

(57) Abstract: A cosmetic container, containing at least one non-woven substrate and an applicator; said non-woven substrate comprising crimped fibers and wherein said non-woven substrate is impregnated with at least one cosmetic composition comprising at least one organic sunscreen agent.

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UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*
— *with amended claims (Art. 19(1))*

COSMETIC SUBSTRATE COMPRISING CRIMPED FIBERS

FIELD OF THE INVENTION

The present invention relates to a cosmetic container which provides a non-woven substrate and an applicator, which may be used for the application of cosmetic or personal care compositions to the skin or hair.

BACKGROUND OF THE INVENTION

Cosmetic foundations are typically contained within a compact. The cosmetic container includes a body and a lid, and within the body is a liquid cosmetic container for holding a substrate for holding a liquid cosmetic composition. Typical substrates for this purpose are conventionally formed from polyethylene foam, polyurethane foam, sponge rubber or foam. These materials are used for holding a cosmetic composition to maintain stable cosmetic.

However, polyether polyurethane foam, for example, suffers from many drawbacks. In one instance, polyether polyurethane foam is limited to cosmetic compositions having a rather narrow viscosity profile. Products that are too thin are not retained by the foam, and product that are too thick can't effectively be injected into the foam. In another instance, certain formulations cannot be injected into polyether polyurethane foam, nitrile butyl rubber, and similar materials because they are incompatible with them. This drawback is quite frequent in the context of organic sunscreen actives. The aforementioned materials also have a tendency to absorb the UV actives, resulting in products which do not exhibit sufficient SPF protection upon use.

In order to address the aforementioned drawbacks, alternative materials, such as synthetic microfiber nonwoven fibers have been employed as substrates for cosmetic fibers. However, nonwoven fibers tend to suffer from a lack of resilience, as compared to polyether polyurethane foam. Also, each of the known substrate executions tend to suffer from product loss due to leakage at the peripheral surface of the substrate. Therefore, known nonwoven fiber configurations are less capable of absorbing, retaining, and uniformly dispense cosmetic compositions from such substrates. Therefore, there is an ongoing need for a cosmetic substrate which avoids the drawbacks of polyether polyurethane foam, which maintaining resilience, absorbency, and uniform dispensing of cosmetic compositions.

SUMMARY OF THE INVENTION

The present invention relates to a cosmetic container which provides a non-woven substrate and an applicator, which may be used for the application of cosmetic or personal care compositions to the skin or hair. The non-woven substrate preferably uses crimped microfibers and may be layered, modified to include a peripheral liquid-impermeable rim, and combinations thereof. The composition of the fibers may also be tailored for maximum stability when used in combination with particular formulations, such as sunscreens.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a photograph showing two cosmetic substrates, one of the substrates including a silicone substantially liquid-impermeable peripheral surface and the other substrate without a liquid-impermeable peripheral surface.

FIG. 2 is a photograph showing a cosmetic liquid leaking from the peripheral edge of a cosmetic substrate which does not include a substantially liquid-impermeable peripheral surface.

FIG. 3 is a photograph showing a cosmetic substrate with a substantially liquid-impermeable peripheral edge as it is compressed.

FIG. 4 is a set of photographs showing a cosmetic container containing a compact cosmetic product including a microfiber substrate.

DETAILED DESCRIPTION OF THE INVENTION

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

All percentages, parts and ratios are based upon the total weight of the compositions of the present invention, unless otherwise specified. All such weights as they pertain to listed ingredients are based on the active level, and, therefore, do not include solvents or by-products that may be included in commercially available materials, unless otherwise specified. The term "weight percent" may be denoted as "wt.%" herein.

All molecular weights as used herein are weight average molecular weights expressed as grams/mole, unless otherwise specified.

Herein, “comprising” means that other steps and other ingredients which do not affect the end result can be added. This term encompasses the terms "consisting of" and "consisting essentially of". The compositions and methods/processes of the present invention can comprise, consist of, and consist essentially of the essential elements and limitations of the invention described herein, as well as any of the additional or optional ingredients, components, steps, or limitations described herein.

The term “charge density”, as used herein, refers to the ratio of the number of positive charges on a monomeric unit of which a polymer is comprised to the molecular weight of said monomeric unit. The charge density multiplied by the polymer molecular weight determines the number of positively charged sites on a given polymer chain.

The term “microfiber”, as used herein, refers to fibers having a decitex value of less than about 50. Preferably, the microfibers have a decitex value of less than about 40, and more preferably less than about 30, and most preferably less than about 15. The microfibers also have a decitex value which is greater than about 0.5, and more preferably greater than about 1.0, and most preferably greater than about 1.5.

The term “polymer” as used herein shall include materials whether made by polymerization of one type of monomer or made by two (*i.e.*, copolymers) or more types of monomers.

The term “solid particle” as used herein means a particle that is not a liquid or a gas.

The term “water-soluble” as used herein, means that the polymer is soluble in water in the present composition. In general, the polymer should be soluble at 25°C at a concentration of at least 0.1% by weight of the water solvent, preferably at least 1%, more preferably at least 5%, most preferably at least 15%.

The term “water-insoluble” as used herein, means that a compound is not soluble in water in the present composition. Thus, the compound is not miscible with water.

The personal care compositions of the present invention comprise a cationically modified starch polymer, an anionic surfactant system, and a cosmetically acceptable medium. Each of these essential components, as well as preferred or optional components, is described in detail hereinafter.

Crimped Microfiber Web

The present invention comprises at least one substrate comprising a web of crimped microfibers.

Webs of the invention are useful for other purposes also, especially where the presence of microfibers, with the special properties provided by them, in combination with loft and moderate density offers a special advantage.

Crimped fibers, i.e. having a continuous wavy, curly, or jagged character along their length, are available in several different forms. Three representative types of known crimped fibers are a generally planar, regularly crimped fiber such as prepared by crimping the fibers with a sawtooth gear; a randomly crimped (random as to the plane in which an undulation occurs and as to the spacing and amplitude of the crimp) such as prepared in a stuffing box; and a helically crimped fiber. Three-dimensional fibers generally encourage greater loftiness in a web of the invention. However, good webs of the invention can be produced from fibers having any of the known types of crimp.

The number of crimps i.e. complete waves or cycles per unit of length can vary rather widely. In general the greater the number of crimps per centimeter (measured by placing a sample fiber between two glass plates, counting the number of complete waves or cycles over a 3-centimeter span, and then dividing that number by 3), the greater the loft of the web.

Crimped fibers also vary in the amplitude or depth of their crimp. Although amplitude of crimp is difficult to uniformly characterize in numerical values because of the random nature of many fibers, an indication of amplitude is given by percent crimp. The latter quantity is defined as the difference between the uncrimped length of the fiber (measured after fully straightening a sample fiber) and the crimped length (measured by suspending the sample fiber with a weight attached to one end equal to 2 milligrams per decitex of the fiber, which straightens the large-radius bends of the fiber) divided by the crimped length and multiplied by 100. Bulking fibers used in the present invention generally exhibit an average percent crimp of at least about 15 percent, and preferably at least about 25 percent.

Cimped fibers according to the description above are commercially available from, for example, Fiber Innovation Technology.

Microfiber Materials

The microfibers may be formed from natural or synthetic fibers, or from combinations thereof.

Suitable synthetic fibers may include, for example, polyester, thermoplastic elastomers and the like. Particularly preferable synthetic fibers include, for example, Polyethylene(PE), Polypropylene(PP), Polymethyl Methacrylate (PET), Polybutene-1(PB-1), and mixtures thereof.

Polyesters include, for example, polyethylene terephthalate, polytrimethylene terephthalate, polybutylene terephthalate, poly- hexamethylene terephthalate, polytetramethylene, poly 1, 4 - dimethyl cyclohexane terephthalate, but such poly- hydro lactone, the invention, is not limited to such exemplary only. These polyesters are, respectively may be used alone, in combination with 2 or more kinds may be. Among these thermoplastic polyester is, outstanding resistance, polyethylene terephthalate, polytrimethylene terephthalate, polybutylene terephthalate and poly- hexamethylene terephthalate is preferred.

Thermoplastic elastomers include, for example, polyester-based elastomer, a polyurethane-based elastomer and the like. In all of these, from the viewpoint of improving light resistance of the substrate of a cosmetic of the present invention, polyester-based elastomer is preferred.

Polyester elastomers include, for example, polyesters such as polyethylene terephthalate-based elastomers based elastomer, and a polyester hard segment, a poly (alkylene oxide) glycol polyether soft segments ester block copolymer - and the like. Polyether - ester block copolymer may, for example, a poly (alkylene oxide) glycol and dicarboxylic acids and diols can be prepared by reacting.

The dicarboxylic acids include, for example, phthalic acid o -, m - phthalic acid, terephthalic acid, naphthalene - 2, 6 - dicarboxylic acid, naphthalene - 2, 7 - dicarboxylic acid, diphenyl - 4, 4' - dicarboxylic acid, acid, 3 - sodium sulfoisophthalic acid or an aromatic dicarboxylic acid, 1, 4 - cyclohexanedicarboxylic acid or alicyclic dicarboxylic acid, succinic acid, oxalic acid, adipic acid, sebacic acid, aliphatic dicarboxylic acid such as dimer acid and the like, the present invention is, is not limited to such exemplary only. These dicarboxylic acid, may also be used each alone, 2 or more types may be combined.

Diols may include, for example, ethylene glycol, trimethylene glycol, tetramethylene glycol, penta- methylene glycol, hexamethylene glycol, 1, 4 - butanediol, neopentyl glycol, aliphatic diol such as deca- methylene glycol, 1, 1 - cyclohexane dimethanol, 1, 4 - cyclohexanedimethanol, or alicyclic diols such as tricyclodecanedimethanol include, the invention, is not limited to such exemplary only. These diols are, respectively may be used alone, in combination with 2 or more types may be.

The poly (alkylene oxide) glycols include, for example, polyethylene glycol, poly (1, 2 - propylene oxide) glycol, poly (1, 3 - propylene oxide) glycol, poly (tetramethylene oxide) glycol, ethylene oxide - propylene oxide copolymer, ethylene oxide-tetrahydrofuran copolymer - and the like, according to the present invention, is not limited to such exemplary only. The poly (alkylene

oxide) glycols are, respectively may be used alone, in combination with 2 or more types may be. The poly (alkylene oxide) glycol having a number average molecular weight, generally, about 400 - 5000 is preferred.

Polyurethane elastomers are, for example, polyol and diisocyanate obtained by polymerization in the presence of chain extender.

As the diisocyanate, for example, diphenylmethane diisocyanate, tolylene diisocyanate, isophorone diisocyanate, hydrogenated diphenylmethane diisocyanate, xylylene diisocyanate, such as hexamethylene diisocyanate and the like wherein the molecular weight of 500 or less, the present invention is, not limited to such exemplary only. These diisocyanates may be, may also be used each alone, 2 or more kinds may be used.

Chain extending agents include, for example, ethyleneglycol, aminoalcohols, bis hydroxy ethoxy benzene, 1, 4 - butanediol and the like, according to the present invention, is not limited to such exemplary only. The chain extension agent, may also be used each alone, 2 or more kinds may be used.

The microfibers may be formed from one or more types of fibers, for example, by mono or co-extruding the fiber materials. In the case of composite fibers, the individual fibers may be combined according to various orientations. For example, the fibers may combined as a sheath-core type composite fiber, side-by-side type conjugate fiber, island type composite fiber and the like. In all of these, from the viewpoint of efficiently integrating a contact between fibers, sheath-core type composite fiber is preferably, crimping is generated by heating, preferably by-side type conjugate fiber of side. Also, in a particular embodiment, the core fiber of the sheath-core-type configuration are extruded such that they oriented substantially off-center, in a so-called “eccentric sheath-core” configuration, from the radial center of the sheath-core composite fibers. This configuration may assist facilitation of a crimped fiber structure.

In a sheath-core type composite fiber, a core component of the bicomponent fiber are preferably not exposed to the surface. Furthermore, the fibers of the sheath core fibers of the radial center of the radial direction with the center of the more preferred. The sheath-core type composite fiber, concentric sheath-core structure may be formed, eccentric core-sheath-like structure may be formed. The eccentric core-sheath composite fiber having a core-sheath structure is formed in a cylindrical structure, resulting from the heating and crimping. The sectional shape of the core-sheath type conjugate fibers include, for example, circular, triangular, square or polygonal, oval, elliptical and the like, according to the present invention, is not limited

to such exemplary only. Among these features, circular is preferred. Preferably the ratio of the core component to the sheath component of the conjugate fiber is from about 30:70 - 70:30.

The substrate, comprising the fibers herein, preferably has fibers with a fineness of from about 0.5 - 15 denier, more preferably 1 - 10 denier.

The composite fibers of the length, of a cosmetic makeup can be efficiently extracted to the outside is taken into the inside of the substrate, the substrate from the viewpoint of mechanical strength of a cosmetic, preferably about 20 - 150 mm.

The composite fibers may be treated with antimicrobial agents or other surface treatments.

Other suitable fibers for use in the substrate herein may include, for example, cotton, hemp, silk or the like natural fibers, regenerated fibers such as rayon, synthetic fibers and the like. For use in cosmetic applications, synthetic fibers are preferred.

The synthetic fibers include, for example, polyethylene terephthalate fibers, polybutylene terephthalate fibers, polyester fibers such as polytrimethylene terephthalate fibers, polyvinyl chloride fibers, polyvinylidene chloride fibers, polypropylene fibers, polyvinyl alcohol fibers, polyamide fibers such as nylon 6, polyimide fibers, polyamide fibers, cellulose acetate fibers and the like, the present invention is, is not limited to such exemplary only. These fibers may be used alone or in combination with multiple types of fibers. In the case of core-sheath type bicomponent fibers, it is particularly preferred to us a PET sheath with a PP core.

In one embodiment, the substrate may comprise multiple layers, each of which may comprise different characteristics from each other such as density, pore size, hardness, material make up, surface energy, surface treatment, resiliency, and the like. In one embodiment, the surface layer of the substrate has a density which is less than at least the base layer of the substrate. In another embodiment, at least one characteristic of each of the intermediate layers between the surface and base layer increases incrementally and progressively from the top layer to the base layer. For example, in one embodiment, each layer from the top layer to the base layer is increasingly dense. It is believed that incrementally increasing the density of each layer, from the top layer to the bottom layer, provides the benefit of preventing “pooling” of an impregnated cosmetic composition at the base layer of the substrate.

Liquid Impermeable Rim

One problem presented by substrates used for cosmetic applications is that the peripheral surface of the substrate often suffers from leakage and product loss. Therefore, one embodiment

of this invention comprises a cosmetic substrate which comprises a peripheral surface, wherein the peripheral surface is substantially liquid-impermeable.

Liquid-impermeability may be achieved by a variety of techniques. For example, the peripheral surface may be heat-sealed, or it may be treated with a liquid-impermeable material such as a silicone film. Alternately, the substrate may be formed such that the peripheral wall is in close contact with an exterior wall, such that a liquid would not easily be expelled through the peripheral surface of the substrate.

Fig. 1 is a photograph of two substantially identical microfiber substrates. The second substrate comprises a substantially liquid-impermeable rim, provided by a the application of a silicone rim (Macroplast® BK 322). The first substrate is provided without the silicone rim. Both substrates are filled with 11.5g of a cosmetic liquid.

Figs. 2 and 3 are photograph depictions where the edges of each substrate are depressed by about 30%. As is demonstrated in Fig 2, the substrate lacking the liquid-impermeable rim shows product loss from the sides of the substrate. In contrast, Fig. 3 shows the liquid being retained by the substantially liquid-impermeable rim.

While the substrate of the present invention preferably comprises a microfiber web, it is contemplated that other substrates, such as polyurethane polyester or nitrile butyl rubber (NBR) may be treated to include a substantially liquid-impermeable peripheral surface.

Cosmetic Composition

The cosmetic container and microfiber substrate of the present invention are well-suited for containing a broad variety of cosmetic compositions. Such compositions may include, for example, personal cleansing compositions, makeup compositions, cosmetic treatments, and the like. In particular, the compositions may include physical or chemical sunscreen agents.

Exemplary chemical sunscreen agents include, but are not limited to UVA and UVB sunscreens, such as benzophenones and derivatives thereof (e.g., benzophenone-3, dioxybenzone, sulisobenzone, octabenzone, hydroxy- and/or methoxy-substituted benzophenones, and benzophenonesulfonic acids and salts thereof); salicylic acid derivatives (e.g., ethylene glycol salicylate, triethanolamine salicylate, octyl salicylate, homomenthyl salicylate, and phenyl salicylate); urocanic acid and derivatives thereof (e.g., ethyl urocanate); p-aminobenzoic acid (PABA) and derivatives thereof (e.g., ethyl/isobutyl/glyceryl esters thereof and 2-ethylhexyl p-dimethylaminobenzoate, which is also referred to as octyldimethyl PABA); anthranilates and derivatives thereof (e.g., o-amino-benzoates and various esters of amino-benzoic acid);

benzalmalonate derivatives; benzimidazole derivatives; imidazolines; bis-benzazolyl derivatives; dibenzoylmethanes and derivatives thereof; benzoazole/benzodiazole/benzotriazoles and derivatives thereof (e.g., 2-(2-hydroxy-5-methylphenyl) benzotriazole and methylene bis-benzotriazolyl tetramethylbutylphenol, which is commonly referred to as "Tinosorb M"); diesters or polyesters containing diphenylmethylene or 9H-fluorene substitutional groups; 2-phenyl-benzimidazole-5-sulphonic acid (PBSA); 4,4-diarylbutadienes; cinnamates and derivatives thereof (e.g., 2-ethylhexyl-p-methoxycinnamate, octyl-p-methoxycinnamate, umbelliferone, methylumbelliferone, methylaceto-umbelliferone, esculetin, methylesculetin, and daphnetin); camphors and derivatives thereof (e.g., 3-benzylidenecamphor, 4-methylbenzylidenecamphor, polyacrylamidomethyl benzylidenecamphor, benzylidene camphor sulfonic acid, and terephthalylidene dicamphor sulfonic acid, which is commonly referred to as "Encamsule"); triazines and derivatives thereof (e.g., 2,4-bis-{[4-(2-ethyl-hexyloxy)-2-hydroxy]-phenyl}-6-(4-methoxyphenyl)-1,3,5-triazine, which is commonly referred to as "Tinosorb S"); naphthalates and derivatives thereof (e.g., diethylhexyl-2,6-naphthalate); naphtholsulfonates and derivatives thereof (e.g., sodium salts of 2-naphthol-3,6-disulfonic and 2-naphthol-6,8-disulfonic acids); dibenzalacetone and benzalacetonephenone; diphenylbutadienes and derivatives thereof; di-hydroxynaphthoic acid and salts thereof; o- and p-hydroxybiphenyldisulfonates; coumarin derivatives (e.g., 7-hydroxy, 7-methyl, and 3-phenyl derivatives thereof); azoles/diazoles/triazoles and derivatives thereof (e.g., 2-acetyl-3-bromoindazole, phenyl benzoxazole, methyl naphthoxazole, and various aryl benzotriazoles); quinine and derivatives thereof (e.g., bisulfate, sulfate, chloride, oleate, and tannate salts thereof); quinoline and derivatives thereof (e.g., 2-phenylquinoline and 8-hydroxyquinoline salts); tannic acid and derivatives thereof (e.g., hexaethylether derivatives thereof); hydroquinone and derivatives thereof; uric acid and derivatives thereof; vilouric acid and derivatives thereof, and mixtures or combinations thereof. Salts and otherwise neutralized forms of certain acidic sunscreens from the list hereinabove are also useful herein. These organic or chemical sunscreen agents may be used alone or in combination of two or more. In addition, other known animal or vegetable extracts having UV light-absorbing ability may properly be used alone or in combination.

Organic or chemical sunscreen agents that are particularly useful for the practice of the present invention are: 4,4'-t-butyl methoxydibenzoylmethane, 2-ethylhexylsalicylate, 3,3,5-trimethylcyclohexylsalicylate, 2-ethylhexyl p-methoxycinnamate, 2-hydroxy-4-methoxybenzophenone, 2,2-dihydroxy-4-methoxybenzophenone, 2,4-bis-{4-(2-ethyl-hexyloxy)-2-hydroxy]-phenyl}-6-(4-methoxyphenyl)-1,3,5-triazine, methylene bis-benzotriazolyl

tetramethylbutylphenol, terephthalylidene dicamphor sulfonic acid, diethylhexyl 2,6-naphthalate, digalloyltrioleate, ethyl 4-[bis(hydroxypropyl)]aminobenzoate, glycerol p-aminobenzoate, methylanthranilate, p-dimethylaminobenzoic acid or aminobenzoate, 2-ethylhexyl p-dimethylaminobenzoate, 2-phenylbenzimidazole-5-sulfonic acid, 2-(p-dimethylaminophenyl)-5-sulfoniobenzoxazoic acid, and mixtures or combinations thereof.

Although organic or chemical sunscreens can be used in the topical composition of the present invention, it is not necessary to include them since the combination of inorganic sunscreen particles (e.g., TiO_2 and/or ZnO) with the alkoxylated diphenylacrylate compound provides a sufficient photo-protective barrier for blocking the harmful UV-A and UV-B radiation. Preferably, the topical composition of the present invention is substantially free of any organic or chemical sunscreens, and more preferably free of dibenzoylmethane derivatives, such as Avobenzone.

Test Examples 1: Sponge Compatibility test

Sponges of different material were tested with the W/O and O/W emulsion make-up cosmetics compositions. Reference Examples 1 is Polyether PU foam; 2 is Polyester PU foam; 3 is NBR foam; 4 is Non-woven sponge. All kinds of sponges are cut into a cylinder of Ø 48mm * 9mm. After impregnation with formulas for a period, sponges are checked as the TABLE 1.

TABLE 1

	24 H at RT	**4 weeks after 50℃**
Examples 1 (PU)	Swell to Ø 55 mm	Swell to Ø 56 mm
Examples 2	Swell to Ø 50 mm	Cracked
Examples 3 (NBR)	Swell to Ø 56 mm	Swell to Ø 60 mm
Examples 4 (Nonwoven)	Maintain appropriate shape	Maintain appropriate shape

As can be seen in Table 1, in the case of comparative, Examples 1 and 3 will absorb oil matter in formulation and swell a lot, Example 2 does not absorb too much, but it will hydrolysis after a period of storage.

Test Examples 2: Formulation Stability Test

Sponges of different material in this test were immersed with an O/W formulation with 5 different chemical sun screening. Reference Examples 1 is Polyether PU foam; 3 is NBR foam; 4 is Non-woven sponge. All kinds of sponges are cut into a cylinder of Ø 48mm * 9mm.

After impregnation with formulas for a period, contents of each chemical sun screening was tested. At the same time, pure formulation stored in glass jar without sponge were tested as well. Decreasing of each agent are being shown as below:

Examples 1				
	1M@ 40C	2M@ 40C	3M@ 40C	4M@ 40C
Avobenzone	-1.60%	-1.89%	-6.54%	-9.61%
Octisalate	-4.58%	-5.57%	-8.96%	-11.93%
Octocrylene	-2.53%	-1.72%	-4.26%	-3.80%
Oxybenzone	-4.77%	-7.16%	-11.26%	-13.95%
Homosalate	-2.51%	-6.30%	-7.19%	-9.95%

Examples 4				
	1M@ 40C	2M@ 40C	3M@ 40C	4M@ 40C
Avobenzone	1.77%	0.81 %	-0.96%	
Octisalate	0.58%	-1.91%	-5.56%	
Octocrylene	1.80%	2.03%	-0.46%	
Oxybenzone	1.44%	-0.30%	-2.83%	
Homosalate	1.16%	-1.27%	-4.11%	

As we can see from the test examples 2, compare with PU and NBR sponge, Non-woven sponge does not absorb chemical sun screening and keep the formula stable after a period of storage.

The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range

surrounding that value. For example, a dimension disclosed as “40 mm” is intended to mean “about 40 mm.”

Every document cited herein, including any cross referenced or related patent or application, is hereby incorporated herein by reference in its entirety unless expressly excluded or otherwise limited. The citation of any document is not an admission that it is prior art with respect to any invention disclosed or claimed herein or that it alone, or in any combination with any other reference or references, teaches, suggests or discloses any such invention. Further, to the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

CLAIMS

What is claimed is:

1. A cosmetic container containing at least one non-woven substrate and an applicator, said substrate comprising crimped fibers.
2. A cosmetic container according to claim 1, wherein said non-woven substrate is impregnated with a cosmetic composition.
3. A cosmetic container according to claim 1, wherein the non-woven substrate comprises one or more fibers selected from the group consisting of Polyethylene(PE), Polypropylene(PP), Polymethyl Methacrylate (PET), Polybutene-1(PB-1), and mixtures thereof.
4. A cosmetic container according to claim 1, wherein the density of non-woven substrate is from about 0.015 g/cm^3 to about 0.06 g/cm^3.
5. A cosmetic container according to claim 1, wherein the non-woven substrate comprises fibers having an average dtex of from about 3 to about 30.
6. A cosmetic container according to claim 2, wherein the cosmetic composition is a water-in-oil (W/O) type or oil-in-water (O/W).
7. A cosmetic container according to claim 2, wherein the cosmetic composition is make-up primer, make-up base, foundation, powder, twin cake, lipstick, lip gloss, eye shadow, eye brow, concealer or blusher.
8. A cosmetic container according to claim 1, wherein said substrate is impregnated with at least one cosmetic composition comprising at least one organic sunscreen agent.
9. A cosmetic container according to claim 8, wherein said non-woven substrate is impregnated with a cosmetic composition.
10. A cosmetic container according to claim 8, wherein the non-woven substrate comprises one or more fibers selected from the group consisting of Polyethylene(PE), Polypropylene(PP), Polymethyl Methacrylate (PET), Polybutene-1(PB-1), and mixtures thereof.
11. A cosmetic container according to claim 8, wherein the density of non-woven substrate is from about 0.015 g/cm^3 to about 0.06 g/cm^3.
12. A cosmetic container according to claim 8, wherein the non-woven substrate comprises fibers having an average dtex of from about 3 to about 30.
13. A cosmetic container according to claim 8, wherein the cosmetic composition is a water-in-oil (W/O) type or oil-in-water (O/W).
14. A cosmetic container according to claim 8, wherein the cosmetic composition is make-up primer, make-up base, foundation, powder, twin cake, lipstick, lip gloss, eye shadow, eye brow, concealer or blusher.
15. A cosmetic container according to claim 8, wherein said sunscreen agent is selected from the group consisting of Avobenzone, Octisalate, Octocrylene, Oxybenzone, Homosalate, and mixtures thereof.
16. A cosmetic container according to claim 1, wherein said container contains least two layers of said non-woven substrates and an applicator, wherein at least two of said layers are different from one another in at least one aspect selected from the group consisting of average density, average dtex, average layer thickness, average fiber surface energy, average fiber

surface treatment, fiber material composition, fiber configuration, and mixtures thereof.

17. A cosmetic container according to claim 1, wherein said substrate has a circumferential rim, and said rim is sealed by a substantially liquid-impermeable material.

18. A cosmetic container according to claim 17, wherein said substrate is impregnated with a cosmetic composition.

AMENDED CLAIMS
received by the International Bureau on 05 September 2018 (05.09.2018)

1. A cosmetic container containing at least one non-woven substrate and an applicator, said substrate comprising crimped fibers.
2. A cosmetic container according to claim 1, wherein said non-woven substrate is impregnated with a cosmetic composition.
3. A cosmetic container according to claim 1, wherein the non-woven substrate comprises one or more fibers selected from the group consisting of Polyethylene(PE), Polypropylene(PP), Polymethyl Methacrylate (PET), Polybutene-1(PB-1), and mixtures thereof.
4. A cosmetic container according to claim 1, wherein the density of non-woven substrate is from about 0.015 g/cm^3 to about 0.06 g/cm^3.
5. A cosmetic container according to claim 1, wherein the non-woven substrate comprises fibers having an average dtex of from about 3 to about 30.
6. A cosmetic container according to claim 2, wherein the cosmetic composition is a water-in-oil (W/O) type or oil-in-water (O/W).
7. A cosmetic container according to claim 2, wherein the cosmetic composition is make-up primer, make-up base, foundation, powder, twin cake, lipstick, lip gloss, eye shadow, eye brow, concealer or blusher.
8. A cosmetic container according to claim 1, wherein said substrate is impregnated with at least one cosmetic composition comprising at least one organic sunscreen agent.
9. A cosmetic container according to claim 8, wherein said non-woven substrate is impregnated with a cosmetic composition.
10. A cosmetic container according to claim 8, wherein the non-woven substrate comprises one or more fibers selected from the group consisting of Polyethylene(PE), Polypropylene(PP), Polyethylene terephthalate(PET), Polybutene-1(PB-1), and mixtures thereof.
11. A cosmetic container according to claim 8, wherein the density of non-woven substrate is from about 0.015 g/cm^3 to about 0.06 g/cm^3.
12. A cosmetic container according to claim 8, wherein the non-woven substrate comprises fibers having an average dtex of from about 3 to about 30.
13. A cosmetic container according to claim 8, wherein the cosmetic composition is a water-in-oil (W/O) type or oil-in-water (O/W).
14. A cosmetic container according to claim 8, wherein the cosmetic composition is make-up primer, make-up base, foundation, powder, twin cake, lipstick, lip gloss, eye shadow, eye brow, concealer or blusher.
15. A cosmetic container according to claim 8, wherein said sunscreen agent is selected from the group consisting of Avobenzone, Octisalate, Octocrylene, Oxybenzone, Homosalate, and mixtures thereof.
16. A cosmetic container according to claim 1, wherein said container contains least two layers of said non-woven substrates and an applicator, wherein at least two of said layers are different from one another in at least one aspect selected from the group consisting of average density, average dtex, average layer thickness, average fiber surface energy, average fiber surface treatment, fiber material composition, fiber configuration, and mixtures thereof.

17. A cosmetic container according to claim 1, wherein said substrate has a circumferential rim, and said rim is sealed by a substantially liquid-impermeable material.

18. A cosmetic container according to claim 17, wherein said substrate is impregnated with a cosmetic composition.

19. A cosmetic container according to claim 1, wherein said substrate comprises fibers with a fineness of from about 0.5 - 15 denier.

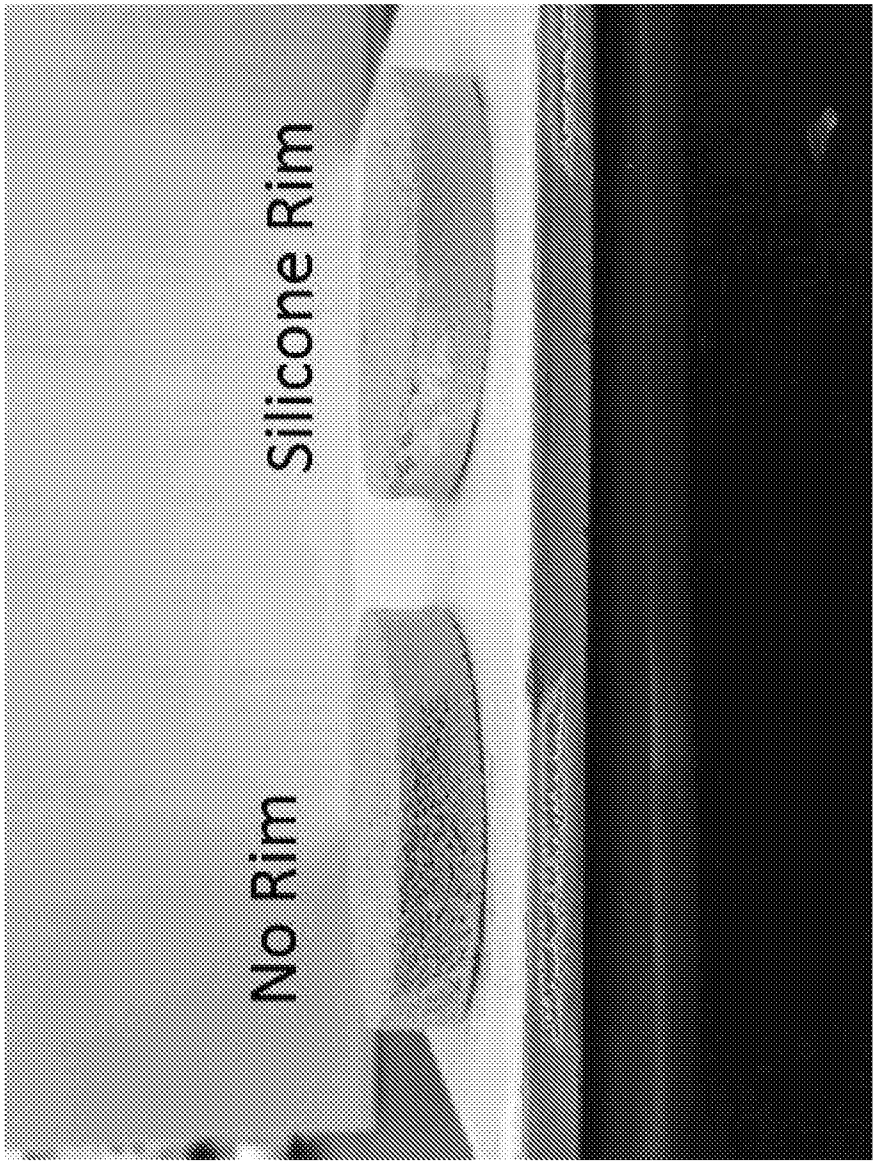


FIG 1/4

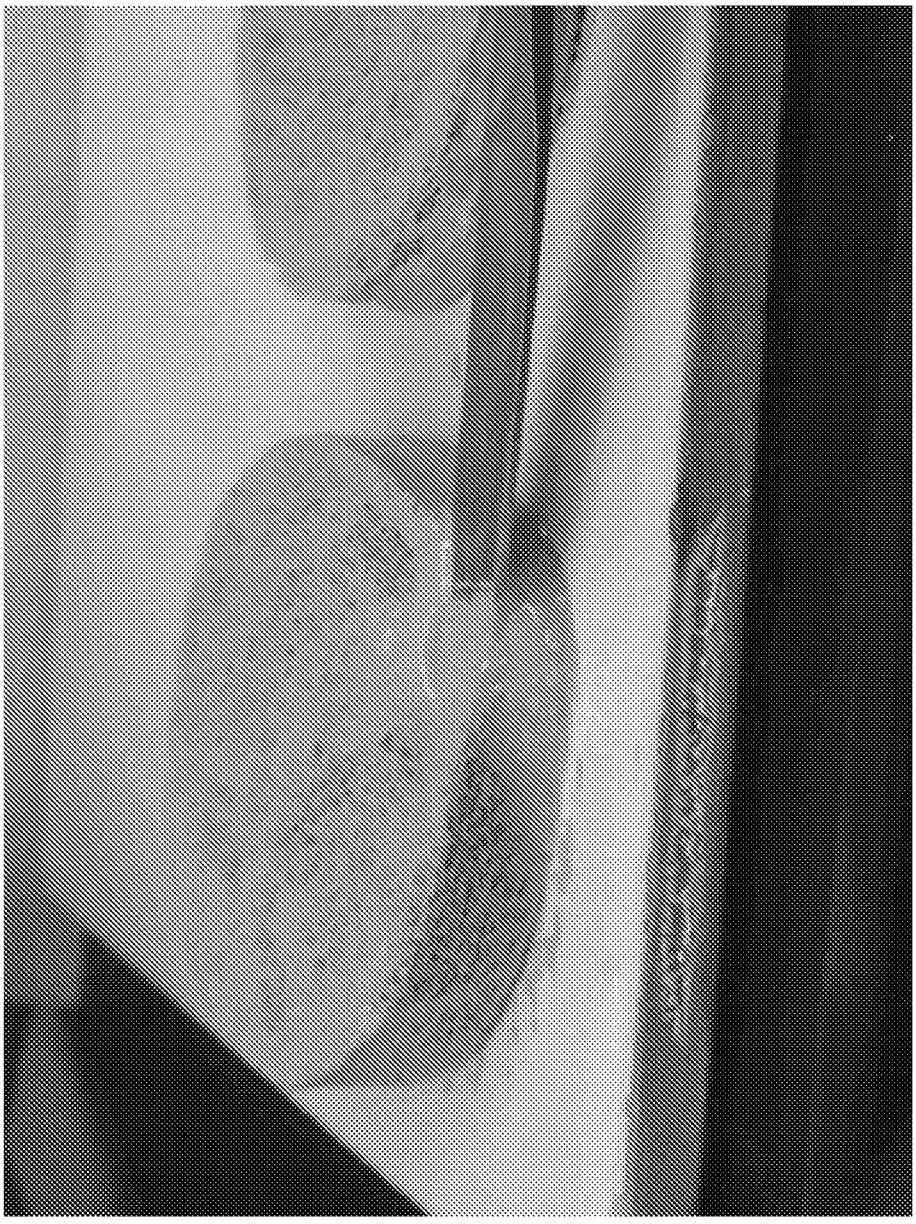


FIG 2/4



FIG 3/4

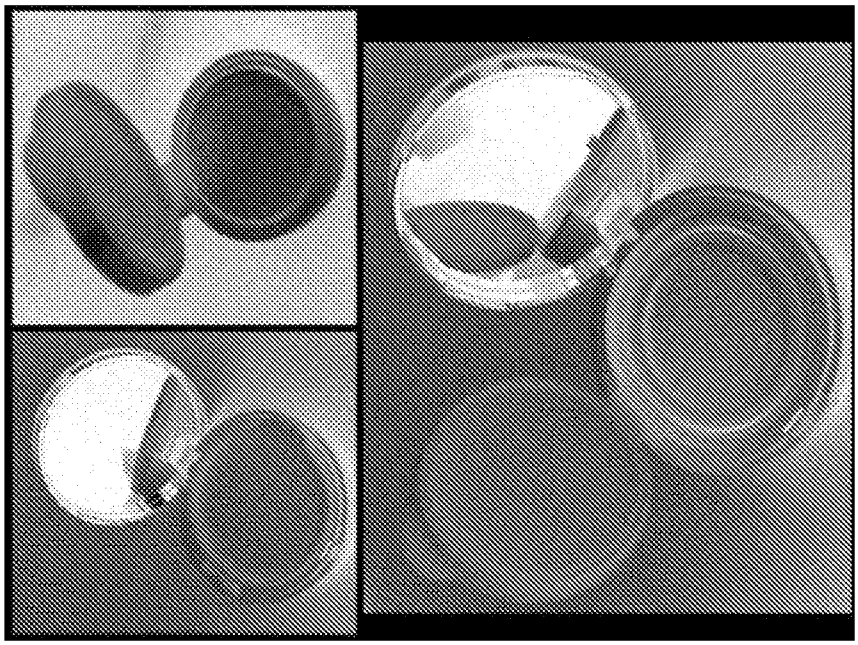


FIG 4/4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2017/086096

A. CLASSIFICATION OF SUBJECT MATTER

A45D 33/00(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A45D

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

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

CNABS, CNKI, WPI, EPODOC, CA; cosmetic container, non-woven, substrate, applicator, crimped microfiber, crimp fiber, Polyethylene,PE, Polypropylene ,PP , Polymethyl Methacrylate, PET, Polybutene-1, PB-1, impregnate+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 106038325 A (LG HOUSEHOLD & HEALTHCARE CO., LTD.) 26 October 2016 (2016-10-26) description, paragraphs 37-39, 54-76	1-16
Y	JP 2017046740 A (TORAY IND. INC.) 09 March 2017 (2017-03-09) description, paragraphs 7-9	1-16
A	CN 104379646 A (AMOREPACIFIC CORP.) 25 February 2015 (2015-02-25) description, paragraphs 14-34	1-18
A	CN 105658108 A (CTK CO., LTD.ET AL.) 08 June 2016 (2016-06-08) description, paragraphs 35-70 and figures 1-2	1-18
A	JP 2013170340 A (KURARAY CO., LTD.) 02 September 2013 (2013-09-02) description, paragraphs 9-25	1-18

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 January 2018	**07 February 2018**

Name and mailing address of the ISA/CN	Authorized officer
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2017/086096

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				US	2017119633	A1	04 May 2017
				WO	2016200038	A1	15 December 2016
				EP	3127530	A1	08 February 2017
				TW	I587874	B	21 June 2017
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				US	2016324736	A1	10 November 2016
				EP	2837652	A1	18 February 2015
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				US	2015117931	A1	30 April 2015
				EP	2837652	A4	11 November 2015
				KR	20140143730	A	17 December 2014
				US	9844496	B2	19 December 2017
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				US	2016183660	A1	30 June 2016
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				EP	3091870	A1	16 November 2016
				JP	6125733	B2	10 May 2017
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