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(71) Applicant (for all designated States except AE, AG, AU, BB, BH, BN, BW, BZ, CA, CL, CR, CY, DE, DJ, DM, DO, EC, EG, GB, GD, GH, GM, GT, HN, IE, IL, IN, IQ, IR, IT, JM, JO, KE, KH, KN, KR, KW, LA, LC, LK, LS, MA, MD, MT, MU, MW, MY, MZ, NA, NG, NI, NZ, OM, PA, PE, PG, QA, RS, RU, RW, SA, SC, SD, SG, SL, SV, SZ, TH, TN, TR, TT, TZ, UG, US, VC, VN, WS, ZA, ZM, ZW): **UNILEVER IP HOLDINGS B.V.** [NL/NL]; Weena 455, 3013 AL Rotterdam (NL).

(71) Applicant (for all designated States except AL, AO, AT, BA, BE, BF, BG, BJ, BR, CF, CG, CH, CI, CM, CN, CO, CU, CV, CZ, DK, DZ, EE, ES, FI, FR, GA, GE, GN, GQ, GR, GW, HR, HU, ID, IS, JP, KM, KP, LR, LT, LU, LV, LY, MC, ME, MG, MK, ML, MN, MR, MX, NE, NL, NO, PH, PL, PT, RO, SE, SI, SK, SM, SN, ST, SY, TD, TG, UA, US, UZ): **UNILEVER GLOBAL IP LIMITED** [GB/GB]; Port Sunlight, Wirral Merseyside CH62 4ZD (GB).

(71) Applicant (for US only): **CONOPCO, INC., D/B/A UNILEVER** [US/US]; 700 Sylvan Avenue, Englewood Cliffs, New Jersey 07632 (US).

(72) Inventors: **CHIMOTE, Pooja Sunil**; Unilever Innovation Centre Wageningen B.V. Bronland 14, 6708 WH Wageningen (NL). **KULKARNI, Aditi Jayavant**; Unilever Innovation Centre Wageningen B.V. Bronland 14, 6708 WH Wageningen (NL). **VARSHNEY, Jonish**; Unilever Innovation Centre Wageningen B.V. Bronland 14, 6708 WH Wageningen (NL).

(74) Agent: **JAMES, Helen, Sarah**; Unilever Patent Group Bronland 14, 6708 WH Wageningen (NL).

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(54) Title: A TRANSPARENT LIQUID CLEANSING COMPOSITION

(57) Abstract: The present invention relates to a liquid skin cleansing composition, more particularly a composition for washing the face that is especially useful and effective in removal of make-up. The composition is delivered as a foam from a container having a pump with the added attraction that the liquid is visibly transparent over a wide range of temperatures including freezing temperatures. This is achieved by formulating a composition comprising synthetic surfactant and specific concentration of fatty acid and humectant in a narrow range of pH of from 8.8 to 9.8.



A TRANSPARENT LIQUID CLEANSING COMPOSITION

Field of the Invention

The present invention relates to a liquid skin cleansing composition, more particularly a composition for washing the face that is especially useful and effective in removal of make-up. The composition is delivered as a foam from a container having a pump with the added attraction that the liquid is visibly transparent over a wide range of temperatures including freezing temperatures.

Background of the Invention

People like to use cosmetic products especially on their face and other exposed parts of the body for various benefits e.g. providing even skin tone, smoothening age related fine wrinkles, providing brightness effect, getting sunscreen benefits etc. Further, makeup products like lipstick, foundations, mascara etc are applied for beautifying the face, to the individuals personal desires.

Such products contain a variety of ingredients which may be particulate e.g. pigments, inorganic particles, powders and sunblock; oily ingredients like organic sunscreens, emollients, solvents; water soluble ingredients like humectants, polymers, and other skin care actives like vitamins, antiaging actives etc. Such leave-on cosmetic and make up products are so formulated that they are meant to have high substantivity on the skin. Such products are claimed to retain their efficacy on the skin and be stable over long periods of use e.g up to 8 to 12 hours and not smudge, smear or run when the person perspires or is exposed to changing external conditions like sunlight, pollution, and dry ambient conditions like a heated or air-conditioned room. While on the one hand such products have to be highly substantive on the skin, on the other hand it is necessary that the consumer has to have a simple, safe and mild wash-off make-up removal product that can be used to easily remove the leave-on cosmetic / make-up products without the need for too much mechanical abrasion.

One popular type of make-up removal product is that which is delivered as a foam from a container which has a pump. The user actuates the pump with her finger which causes the liquid in the container to mix with air and issue forth as a foam product from the container. The foam is applied on to the desired part of the face after which the surface is either wiped with a tissue or rinsed off with water. The present inventors set out to develop a cleansing composition which is useful as a make up remover that is very efficient in removal of both particulate and oily constituents of the make up; with the attractive feature that the composition is in liquid form; is highly transparent; and does not become hazy over a wide range of temperature, even at or below

freezing temperatures. They were able to achieve this with a composition that is a combination of a synthetic surfactant, select concentration of fatty acids and humectants such that the transparency is ensured by limiting the pH to be in a narrow range of 8.8 to 9.8.

It is thus an object of the present invention to provide for a liquid cleansing composition which is highly effective in make-up removal.

It is yet another object of the present invention to provide for a highly efficient make-up removing liquid composition that is transparent over a wide range of temperatures.

It is yet another object of the present invention that such a composition can be delivered as a foam from a container comprising a pump.

10 **Summary of the Invention**

The first aspect of the present invention relates to a transparent liquid cleansing composition generated as a foam from a container comprising a pump, said composition comprising

- (i) 0.1 to 4 wt% of a free fatty acid having 12 to 18 carbon atoms;
- (ii) 5 to 30 wt% of a synthetic surfactant;
- 15 (iii) 1 to 10% of a humectant;
- (iv) 0.1 to 2 wt% of an alkali; and
- (v) 65 to 75 wt% water;

Wherein the composition has a pH in the range of 8.8 to 9.8.

- 20 Another aspect of the present invention relates to a container comprising a pump capable of dispensing a foam, said container comprising a composition of the first aspect.

Detailed Description of the Invention

- These and other aspects, features and advantages will become apparent to those of ordinary skill in the art from a reading of the following detailed description and the appended claims. For the avoidance of doubt, any feature of one aspect of the present invention may be utilised in any other aspect of the invention. The word "comprising" is intended to mean "including" but not necessarily "consisting of" or "composed of." In other words, the listed steps or options need not be exhaustive. It is noted that the examples given in the description below are intended to clarify the invention and are not intended to limit the invention to those examples per se. Similarly, all percentages are weight/weight percentages unless otherwise indicated. Except in the operating and comparative examples, or where otherwise explicitly indicated, all numbers in this description
- 25
- 30

and claims indicating amounts of material or conditions of reaction, physical properties of materials and/or use are to be understood as modified by the word "about". Numerical ranges expressed in the format "from x to y" are understood to include x and y. When for a specific feature multiple preferred ranges are described in the format "from x to y", it is understood that all ranges combining the different endpoints are also contemplated.

The topical composition of the invention is meant to be used for personal care or for cosmetic use and could also be referred to as a personal care composition or a cosmetic composition. The composition of the invention is meant for topical application i.e external surfaces of the skin and/or hair of humans. The composition of the present invention is a cleansing composition.

"Skin" as used herein is meant to include skin on the face and parts of the body (e.g. neck, arms, hands, legs and scalp) which are the exposed parts where one generally tends to apply leave-on cosmetic compositions especially make-up compositions.

The composition of the invention is of the cleansing type that is generated as a foam from a container fitted with a pump. The composition is in liquid form and is transparent. An especially unique benefit of the composition is that when the composition has to experience very high temperatures as well as freezing temperatures and below, the composition remains substantially transparent. The transparency over this wide temperature range provides an attractive visual appeal to the consumer. It is also necessary that the composition at all of these temperatures remains in sufficiently liquid form that it is capable of being pumped using the pump fitted on the container where it mixes with air and is delivered therefrom as a foam. The foamed composition is especially useful in removal of make-up.

By 'substantially transparent' as used herein, it is preferably meant that the transmittance of the composition at 420 nm is preferably more than 50%, preferably more than 60%, preferably more than 70%, preferably more than 75%, preferably more than 80%. Such measurements of transparency may be carried out using a UV-visible spectrophotometer.

The composition of the invention comprises 0.1 to 4 wt% free fatty acid. By free fatty acid is meant the amount of fatty acid present in the composition exclusive of any fatty acid that may have converted to soap due to inclusion of the alkali. The free fatty acid is preferably present in 0.1 to 3%, more preferably 0.5 to 2% by weight of the composition. The free fatty acid preferably comprises C10 to C18 fatty acid. Examples of such fatty acids include lauric acid (C12), myristic

acid (C14), palmitic acid (C16) and stearic acid (C18). For the amount of alkali included in the composition of the invention, the amount of soap generated in situ as a consequence of this is at most 1.0% by weight of the composition, preferably in the range of 0.01 to 0.7 wt%.

5 The composition of the invention comprises a synthetic surfactant which is selected from one or more of an anionic, an amphoteric and a non-ionic surfactant. Preferably the surfactant is selected from one or both of an anionic and an amphoteric surfactant, most preferably a combination of both. The anionic surfactants is preferably selected from an alkyl ether sulphate, primary alkyl sulphate, secondary alkyl sulphonates, alkyl benzene sulphonates, or ethoxylated alkyl
10 sulphates. Especially preferred are sodium lauryl ether sulphate (SLES). The SLES for use in the present invention generally preferably has 1 to 3 ethoxylate (EO) groups. SLES is preferably included in 1 to 14%, preferably 3 to 12% by dry weight basis of the composition. SLES is generally available as a 70% solution in water. The other surfactant which may be included in the present invention is cocoamide monoethanol amine (CMEA) or alkyl glycinate. An especially
15 preferred aspect of the invention involves including both SLES and alkyl glycinate in the composition of the invention.

Another useful surfactant for inclusion in the liquid cleansing composition of the invention is an amphoteric surfactant preferably a betaine surfactant, more preferably an alkyl amidopropyl
20 betaine surfactant for example cocamidopropyl betaine (CAPB). CAPB is generally available as a 30% solution in water. In a preferred embodiment, the composition comprises from 0.1 to 5 wt.%, preferably from 0.5 to 4 wt.%, more preferably from 1 to 3 wt.% of the amphoteric surfactant, on dry weight basis.

25 Surfactants of the non-ionic class for inclusion in the liquid cleansing composition of the invention are preferably of the polyoxyethylene sorbitan alkyl esters class (sold as Tween surfactants)), fatty alcohol ethoxylates (sold as Brij surfactants), alkyl phenol ethoxylates (sold as Triton surfactants), fatty acid ethoxylates (sold as Myrj surfactants), and Alkyl poly glucosides (sold as Plantacare surfactants). The total amount of synthetic surfactants included in the composition of
30 the invention is from 5 to 30%, more preferably 10 to 20% by weight of the composition.

The composition of the invention is prepared by including an alkali therein. The alkali is included to ensure that the pH of the composition is carefully adjusted to be in the range of 8.8 to 9.8, preferably in the range of 9.0 to 9.5. The pH of the composition is measured using a calibrated
35 pH meter at 25 °C. It has been observed that outside this pH range especially below the desired

temperature range, the composition of the invention does not have the desired transparency at low temperatures. The alkali to be included to achieve this may be one or more of sodium hydroxide, potassium hydroxide or triethanolamine, preferably potassium hydroxide. Depending on the alkali or combination of alkali used, it may be included in amount of 0.1 to 2 wt%, preferably 0.1 to 1.5 wt%. When potassium hydroxide is used, it is preferably used at 0.1 to 1 wt%, more preferably from 0.5 to 0.8% on dry weight basis of the composition.

The composition of the invention may include a humectant which is generally a polyhydric alcohol. Preferably the humectant is at least one of propylene glycol, dipropylene glycol, polypropylene glycol, polyethylene glycol, sorbitol, hydroxypropyl sorbitol, hexylene glycol, 1,3-butylene glycol, isoprene glycol, 1,3 propanediol, pentylene glycol, hexylene glycol, 1,2,6-hexanetriol, glycerol, ethoxylated glycerol, and propoxylated glycerol. Preferred humectants are selected from one or more of glycerine, 1,3-butylene glycol, propylene glycol, 1,3 propanediol, pentylene glycol, hexylene glycol, and sorbitol. Glycerol is the most preferred humectant. It is preferred that the amount of humectant is 1 to 10 %, more preferably 4 to 10% by weight of the composition. Water is present in an amount of 65 to 75% by weight of the composition.

The wash-off composition is preferably included in a suitable container. The container is preferably capable of being hand-held. Preferably, the container comprises a pump at its head such that on actuation of the pump by pressing down with a finger or a thumb, the composition mixes with air and issues from the container as a foam. The various ways in which the container with the pump could be delivered are described below.

The container comprises a sprayable foamable composition. It may be delivered using a spray device that contains the foamable composition. The spray device may comprise a bottle having a nozzle and a spray pump dispenser. The invention thus provides a cleaning system comprising a spraying device. The spraying device comprises a container holding the foamable wash-off composition, a spray head, and a liquid supply arrangement for transferring the foamable wash-off composition from the container to the spray head to form the foam. The foam generated generally has a density of less than 0.4 g/ml when ejected from the spray device through the spray head.

The spraying device used in the present invention preferably comprises a container having an internal volume of 25 to 1000 ml, more preferably of 50 to 800 ml, even more preferably 60 to 750 ml and most preferably of 75 to 500 ml.

In the spraying device the dispensing of the wash-off composition is preferably powered by a user's efforts, i.e, the liquid cleaning composition is not dispensed under pressure by simply actuating a valve and requires manual triggering. The spraying device employed in accordance with the present invention is preferably selected from a trigger spray foam bottle, a squeeze foam bottle and a foam pump. Most preferably the spraying device is a squeeze foam bottle or a foam pump. In another preferred embodiment, the spray device is configured to mix the liquid cleaning composition with air before it is dispensed from the spray head. The composition can be placed into the reservoir of a plastic squeeze bottle which contains a foaming spray head or other foam producing means. Squeezing the container causes the wash-off composition to leave the reservoir and enter an air-mixing or foaming chamber via an internal dip tube. The foam produced in the foaming chamber is often passed through a homogenizing element interposed between the air-mixing chamber and the discharge orifice to homogenise and control the consistency of the discharged foam. Further compression of the foam discharges the foam from a discharge cap as a uniform non-pressurised aerated foam. Alternatively, the side walls of the container may be rigid and the dip tube may be fitted with a pump that is actuated by a push button. When composition is drawn by the pump through to the air mixing or foaming chamber, the desired foam is produced.

The container walls may be transparent or opaque but it is preferably transparent so that the consumer could view the contents of the container.

Thus, according to another aspect of the present invention there is provided a container comprising a pump capable of dispensing a foam, said container comprising a composition of the present invention. The invention will now be illustrated with the help of the following non-limiting examples.

Examples

Examples A, 1 - 3: Effect of pH on the haziness of the composition at low temperature.

The compositions as shown in Table – 1 were prepared:

Table – 1

Ingredients	Example A (wt%)	Example 1 (wt%)	Example 2 (wt%)	Example 3 (wt%)
Stearic acid	0.5	0.5	0.5	0.5
Myristic acid	0.3	0.3	0.3	0.3
Lauric acid	0.3	0.3	0.3	0.3
Palmitic acid	0.1	0.1	0.1	0.1
Glycerine	9.0	9.0	9.0	9.0

SLES 1EO	6.0	6.0	6.0	6.0
Potassium cocyl glycinate (30%)	38.0	38.0	38.0	38.0
CAPB (30%)	7.0	7.0	7.0	7.0
Potassium hydroxide (85%)	0.4	0.6	0.7	0.8
Phenoxyethanol	0.6	0.6	0.6	0.6
Water	To 100	To 100	To 100	To 100
pH	8.1	8.85	9.1	9.3
Haziness, 4°C for 24 hrs	Hazy	Slightly hazy but acceptable	Clear	Clear

The data in the above table indicates that compositions as per the invention (Examples 1 - 3) which are within the claimed pH range are visually clear and acceptable while that below the desired pH range (Example – A) is hazy.

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Examples A, B, 1-3: Effect of freeze thaw cycles:

The samples in Table – 1 were taken. Additionally, another sample as per Example – A was prepared with a slightly higher amount of alkali to get a pH of 8.2 (Example B). These samples were subjected to five freeze thaw cycles. Each freeze-thaw cycle comprised holding at -9 °C for 12 hours followed by holding at 25°C for 12 hours.

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The observation is summarized in Table – 2 below:

Table – 2

Example	A	B	1	2	3
pH	8.1	8.2	8.85	9.1	9.3
Observation	Turned milky	Turned milky	Clear	Clear	Clear

15 The data in the above table indicates that compositions as per the invention (Examples 1 - 3) which are within the claimed pH range are visually clear on undergoing several freeze thaw cycles while those below the desired pH range (Example – A, B) turn milky.

Example 1, C: Make-up removal efficacy

20 Sample of Example – 1 along with another commercially available sample outside the invention as given in Table – 3 below were tested for make-up removal efficacy.

Table – 3:

Ingredients	Example C (wt%)
Glycerine	9.0

Propylene glycol	6.0
Potassium cocyl glycinate (30%)	41.1
Sodium lauroamphoacetate	10.6
Potassium hydroxide (85%)	0.002
Phenoxyethanol	0.6
Water	To 100

Makeup removal study was done with 25 panellists. The products were used by the panellists, all of whom had applied the same make up composition in the same way. The data on the percentage of panellists who marked the product as “Excellent or Very Good” is given in the table 5 -4 below:

Table - 4

Parameter	Example -1 (%)	Example – C (%)
It removes makeup well	76	73
Effectiveness of lip makeup removal	77	69
No harsh rubbing is required to remove makeup	92	85

The data in Table – 4 above indicates that the composition as per the invention (Example – 1) is preferred much more than a commonly available composition (Example – C) which is outside the invention, in all make-up removal efficacy parameters measured.

Additionally, another sample as per example 2 was prepared with pH=9.05 (example 4); and transparency of this composition was measured at 420 nm at room temperature, using UV-VIS spectrophotometer with de-mineralized water as control. The average transmittance of this composition was found to be $84.37 \pm 0.11\%$.

Claims

1. A transparent liquid cleansing composition generated as a foam from a container comprising a pump, said composition comprising
 - (i) 0.1 to 4 wt% of a free fatty acid having 12 to 18 carbon atoms;
 - (ii) 5 to 30 wt% of a synthetic surfactant;
 - (iii) 1 to 10% of a humectant;
 - (iv) 0.1 to 2 wt% of an alkali; and
 - (v) 65 to 75 wt% water;wherein the composition has a pH in the range of 8.8 to 9.8.
2. A composition as claimed in claim 1 wherein the synthetic surfactant is selected from one or more of an anionic, non-ionic and an amphoteric surfactant.
3. A composition as claimed in claim 2 wherein the anionic surfactant is selected from one or both of sodium lauryl ether sulphate and alkyl glycinate.
4. A composition as claimed in claim 2 or 3 wherein the amphoteric surfactant is alkyl amido propyl betaine.
5. A composition as claimed in any one of the preceding claims comprising 10 to 20 wt% synthetic surfactant.
6. A composition as claimed in any one of the preceding claims wherein the alkali is potassium hydroxide, sodium hydroxide, or triethanolamine preferably potassium hydroxide.
7. A composition as claimed in claim 6 comprising 0.1 to 1 wt% potassium hydroxide.
8. A composition as claimed in any one of the preceding claims wherein the container is transparent.
9. A container comprising a pump capable of dispensing a foam, said container comprising a composition as claimed in any one of the preceding claims.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER					
INV.	A61K8/04	A61K8/19	A61K8/36	A61K8/44	A61K8/46
	A61Q1/14				
ADD.					
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)					
A61K					
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched					
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)					
EPO-Internal, WPI Data					
C. DOCUMENTS CONSIDERED TO BE RELEVANT					
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☒ Further documents are listed in the continuation of Box C.					
☒ See patent family annex.					
* Special categories of cited documents :					
"A" document defining the general state of the art which is not considered to be of particular relevance			"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		
"E" earlier application or patent but published on or after the international filing date			"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		
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)			"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		
"O" document referring to an oral disclosure, use, exhibition or other means			"&" document member of the same patent family		
"P" document published prior to the international filing date but later than the priority date claimed					
Date of the actual completion of the international search			Date of mailing of the international search report		
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INTERNATIONAL SEARCH REPORT

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