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(54) Title: SKIN CLEANSING COMPOSITION CONTAINING VISIBLE OIL DROPLETS

(57) Abstract: Skin cleansing composition, especially a face cleansing composition, and in particular make-up removal composition, which imparts excellent cleansing properties, non-irritating, and suitable for people having sensitive skin. The skin cleansing composition of the present invention has an appealing visually distinct biphasic composition containing an aqueous phase and an oil phase dispersed in the aqueous phase. The skin cleansing composition comprises an oil agent, an anionic Methacrylate Copolymer; a neutralizing agent; a moisturizing; a colorant; a preservative and co-preservative and water.

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## FIELD OF THE INVENTION

[0001] The present invention relates to a skin cleansing composition, especially a face cleansing composition, in particular suitable as a make-up remover. The composition has an appealing biphasic appearance with an oil phase dispersed in the aqueous phase. The skin cleansing composition of the present invention comprises an oil agent, an anionic Methacrylate Copolymer, a neutralizing agent and auxiliary agents.

## BACKGROUND OF THE INVENTION

[0002] Generally, make-up is used to improve the outward appearance, in particular the appearance of the face. Already in ancient times make-up was used. In Egypt, at the times when the pharaohs were governing the country, the use of make-up for the eyes, lips and cheeks was common. Women and men used it to protect the skin against the sun, but also for beautification. Nowadays, make-up is merely used to improve in particular the outward appearance of the face.

[0003] The applied make-up has to be removed. This may be achieved by face cleansers or products solely developed to remove make-up, so called make-up removers, including the special group of eye make-up removers. The skin of the face is a relatively sensitive skin, therefore it is recommended to use mild cleansing compositions not causing irritations.

[0004] Prior art discloses face cleansing compositions suitable to remove make-up. Different types of compositions are described and either product is respectively in the market. The compositions may be in form of emulsions, creamy, milky or liquid ones, gels and oily compositions, sometimes with two distinct phases, which are mixed upon shaking.

[0005] JP 2016074637 A discloses compositions for removing make-up, which do not include a thickener, but instead di-oleic acid polyglyceryl-10, which imparts the viscosity, one or two compounds selected from the group 12-hydroxystearic

acid (tetramer) pentaerythritol, 12-hydroxystearic acid (hexamer) pentaerythritol, pentaisostearic acid dipentaerythritol, and tri-polyhydroxystearic acid dipentaerythritol, and liquid oils.

[0006] EP 0371333 B1 describes a liquid eye make-up remover containing at  
5 least one surface-active substance, selected from specific ethoxylated fatty alcohols, oils, solubilizers, and polyoxyethylene/polyoxypropylene block copolymers; said composition not being an emulsion or a dispersion.

[0007] WO 2016146360 A1 discloses oil based cleansing product, containing two  
10 distinct phases, an oil phase and a water phase, which are mixed shortly before use.

[0008] WO 2017005485 A1 describes a composition intended to be used to soak  
wipes. Said composition contains a specific anionic surfactant, selected from the group of amino acid surfactants, a specific nonionic surfactant, namely an alkyl glucoside, and a block copolymer.

15 [0009] WO 2014098268 A1 discloses microemulsions, containing lower oil content, but still in the range of 25 to 30% by weight, as the examples denote specific nonionic surfactants, associative polyurethanes and polyols are further comprised.

[00010] WO 2014/098266 A1 also discloses microemulsions with lower oil  
20 content but still in the range of 25 to 30% by weight, as the examples denote, a mixture of specific surfactants and polyols.

[00011] US 2003/0157047 A1 describes a make-up removing composition containing an amphiphilic polymer and oil.

[00012] The uses of associative polymers in face cleansing and make-up  
25 removing composition has also been described in EP 1987808. It discloses compositions containing different associative polymers but at the same time relatively high amounts of oil, at least 50 % by weight, or no oils at all.

[00013] US 2015/0328127 A1 describes compositions for face cleansing and eye make-up removal used in combination with a wipe or as a rinse-off composition. Said compositions contain two different polymers, one of which may be an associative polymer, an oily agent and a nonionic surfactant.

5 [00014] One group of currently available products comprises a large amount of oil, the presence of which results in a good make-up-removing effectiveness. However, these products may have the disadvantage of leaving an unpleasant greasy film on the skin. Another group, aqueous make-up-removing  
10 effectiveness of said compositions with regard to long-lasting make-up is limited and often inadequate and these products may lead to dry skin by removing the natural oil film of the skin. Such products may not be suited for the people with sensitive skin.

[00015] Hence, there is a great variety in compositions intended for face  
15 cleansing, in particular make-up removal. But there is still a need to develop new products, which are at least equally as good in cleansing performance as the compositions/products of prior art and have a pleasant appearance. The visual impression of a product is an important feature to influence the consumer to buy a product. The unique appearance of a product helps to draw the attention of the  
20 consumer to the product and helps that the consumer recognizes the product and buys it again. The product should be effective in removing make-up while being gentle, pleasant to use and not causing any irritation and thus suitable for use of people having a sensitive skin.

#### SUMMARY OF THE INVENTION

25 [00016] In accordance with this invention, there is provided a skin cleansing composition comprising visually distinct biphasic composition containing an aqueous phase and an oil phase dispersed in the aqueous phase, wherein the skin cleansing composition, comprises

- an oil agent in an amount from 0.1 to 3.0% (w/w) selected from group comprising hydrocarbon oils, natural oils, synthetic oils, silicone oils and fatty acids;
- 5           – an anionic Methacrylate Copolymer in an amount from 0.3 to 1.0 % (w/w) and the active content of the copolymer;
- a neutralizing agent ;
- a moisturizing agent in an amount from 1 to 10% (w/w);
- a colorant in an amount from 0.0001 to 0.1% (w/w);
- 10           – a preservative and co-preservative in amount from 0.05 to 2% (w/w); and
- water in an amount from 90 to 97 % (w/w).

[00017]       In another embodiment of the invention there is provided a skin cleansing composition wherein mass ratio of aqueous phase to the oil phase is in range from 9:1 to 999:1, preferably from 33:1 to 99:1. The viscosity of said skin  
15   cleansing composition is in range from 800 to 2000 cps, preferable from 1300 to 1700 cps at 25°C.

[00018]       Further, the skin cleansing composition comprises the oil agent in a range from 0.2 to 0.8% (w/w), more preferably from 0.4 to 0.6% (w/w). The  
20   hydrocarbon oil is selected from the group comprising of liquid isoparaffins, squalane, liquid paraffin's, and preferably liquid paraffin's. The natural oil is triglyceride of animal origin or plant origin. The triglyceride of plant origin is selected from the group comprising of coconut oil, (sweet) almond oil (*Prunes Amygdales* (Dulcets)), walnut oil, peach kernel oil, apricot kernel oil, avocado oil  
25   (*Persia Gratissima*), tea tree oil, soybean oil, sesame oil, sunflower oil (*Helianthus Annuus*), tsubaki oil, evening primrose oil, rice bran oil, palm kernel oil, mango kernel oil, cuckoo flower oil, thistle oil, macadamia nut oil, grape seed

oil (*Vitis vinifera*), amaranth seed oil, argan oil, bamboo oil, olive oil (*Olea Europaea*), wheat germ oil, pumpkin seed oil, mallow oil, hazelnut oil, safflower oil, canola oil, sasanqua oil, and jojoba oil. The synthetic oil is liquid polyisobutene of molecular weight in range from 300 to 3,000 (g/mol). The  
5 silicone oil is selected from dimethicones and cyclomethicones. The fatty acid is selected from oleic acid, isostearic acid and mixture thereof.

**[00019]** Further, the skin cleansing composition comprises anionic Methacrylate Copolymer is Acrylates/Beheneth-25 Methacrylate copolymer in a  
10 range from 0.3 to 0.6% (w/w). Furthermore, the neutralizing agent facilitates in neutralization of anionic methacrylate copolymer for formation of gel network. The neutralizing agent is selected from the group comprising of 2-amino-2-methyl-1-propanol (AMP), 2-amino-2-methyl-1, 3-propanediol (AMPD), mono-isopropanolamine, tri-isopropanolamine, inorganic bases  
15 sodium hydroxide and potassium hydroxide, and preferably sodium hydroxide.

**[00020]** Furthermore, the skin cleansing composition comprises the moisturizing agent glycerin, propylene glycol, butylene glycol and preferably  
20 glycerin in a range from 2 to 5% (w/w).

**[00021]** Furthermore, the skin cleansing composition comprises colorant which is oil soluble or aqueous phase soluble in a range from 0.0005 to 0.001% (w/w). The oil soluble colorant is selected from the group comprising of CI42090,  
25 CI61570, CI16035, CI 10316 and mixture thereof.

**[00022]** Furthermore, the skin cleansing composition comprises preservative and co-preservative in range from 0.1 to 1% (w/w). The preservative is selected from the group comprising of phenoxyethanol, benzethonium chloride,

benzalkonium chloride and mixture thereof, preferably phenoxyethanol. The co-preservative is selected from the group comprising of ethylhexyl glycerine 1, 6-hexandiol and mixture thereof.

[00023] Furthermore, the skin cleansing composition comprises the water  
5 in a range from 91 to 93% (w/w).

[00024] Furthermore, the skin cleansing composition has pH in a range  
from 6.5 to 7.5 and may further comprise additional compounds perfume,  
antioxidants, active ingredients, vitamins, extracts from plants and mixture  
10 thereof.

[00025] Moreover, the method for cleansing face and removing make-up  
wherein said composition is applied to skin having make up thereon to remove  
cosmetic composition.

## 15 BRIEF DESCRIPTION OF THE DRAWINGS

[00026] **FIGURE 1(a):** is a representation for evaluating the cleansing  
ability of the skin cleansing composition.

[00027] **Figure 1(b):** is a representation for evaluating the cleansing ability  
of the rheology modifier (polymer solution) of the skin cleansing composition.

20 [00028] **Figure 2:** is a representation of the biphasic skin cleansing  
composition with oil droplets dispersed in the liquid phase.

## DESCRIPTION OF THE INVENTION

[00029] Discussed below are some representative embodiments of the  
current invention. The invention in its broader aspects is not limited to the specific  
25 details and representative methods. The illustrative examples are described in this

section in connection with the embodiments and methods provided. The invention according to its various aspects is particularly pointed out and distinctly claimed in the attached claims read in view of this specification, and appropriate equivalents.

5 [00030] It is to be noted, as used in the specification and the appended claims, the singular forms “a”, “an”, and “the” include plural referents unless the context clearly dictates otherwise. Thus, for example, reference to a composition containing “a compound” includes a mixture of two or more compounds. It should also be noted that the term “or” is generally employed in its sense including  
10 “and/or” unless the content clearly dictates otherwise. The expression of various quantities in terms of “%w/w” means the percentage by weight, relative to the weight of the total composition unless otherwise specified.

[00031] The expression of quantity in terms of “% w/w” or “%” means the percentage by weight, relative to the weight of the total solution or composition,  
15 unless otherwise specified.

[00032] Make-up compositions contain a great number of raw materials, which are of very different chemical nature. The dyes, contained in make-up compositions, are selected from inorganic pigments such as silicates (magnesium silicate (talc), aluminum silicate (kaolin)), and metal oxides (chrome, iron,  
20 manganese, titanium, and zinc oxides), and/or organic pigments. Binding means may be esters of stearic acid, lanolin alcohol and lanolin acetate. Furthermore, waxes, such as for instance, beeswax or carnauba wax, and oils, such as for instance, paraffin oil, silicone oil or castor oil, may be contained. Additionally, preservatives, antioxidants, thickeners and other additives may be comprised.

25 [00033] To achieve a proper face cleansing, these different compounds have to be removed from the skin. At the same time all the different substances, such as non-polar substances, for example waxes, oils and silicone oils and pigments of low solubility, for example talc or titanium oxide have to be

solubilized. This holds true for foundations, lipsticks, eye shadows, eye pencils, and in particular for long-lasting and waterproof products, such as mascara.

[00034] The aforementioned problems are solved by a skin cleansing composition, in particular a face cleansing and make-up removing composition, in  
5 form of a biphasic composition containing an aqueous phase and an oily phase dispersed in the aqueous phase, wherein the skin cleansing composition, comprises:

- an oil agent in an amount from 0.1 to 3.0% (w/w) comprising hydrocarbon oils, natural oils, synthetic oils, silicone oils and fatty acids;
  - 10 - an anionic Methacrylate Copolymer in an amount from 0.3 to 1.0 % (w/w) and the active content of the copolymer;
  - a neutralizing agent;
  - a moisturizing agent in an amount from 1 to 10% (w/w);
  - a colorant in an amount from 0.0001 to 0.1% (w/w);
  - 15 - a preservative and co-preservative in amount from 0.05 to 2% (w/w);
- and
- water in an amount from 90 to 97 % ( w/w).

[00035] In the meaning of the present invention oil phase and oily phase are used synonymously. Advantageously, the range of the weight ratio of the water  
20 phase to the oil phase is from 9:1 to 999:1, preferably from 33:1 to 99:1. The values are indicating that the water phase is present in much greater amounts than the oil phase; therefore the composition of the present invention is an aqueous-based one. The composition of the invention contains 90 % to 97 % by weight, preferably 91 to 93 % by weight water, in relation to the total weight of the  
25 composition.

[00036] The composition of the present invention is a viscous liquid and keeps the delicate balance between a composition being too viscous, having a gel-like form and a composition being non-viscous with a probable oil phase separation. A means to determine, if the composition is a viscous liquid without

phase separation, is the measurement of the viscosity. There is only a relatively small range of viscosity values being associated with a viscous liquid without phase separation. Viscosity values of 800 to 2000 cps, preferably 1300 to 1700 cps, are indicating the desired condition of the composition, namely a viscous liquid. The viscosity was determined using a Rheomat R123, Bob No. 1 spindle. The measurements were performed at 25°C.

[00037] According to the invention, Acrylates/Beheneth-25 Methacrylate Copolymer is used. This polymer is mainly synthesized from the monomers acrylic acid, acrylate esters and a beheneth-20 methacrylate ester. The beheneth-20 methacrylate ester contributes the hydrophobic side chains, which result in the associative properties of this polymer.

[00038] Without being bound to theory, it may be assumed that the polymer used forms a three-dimensional network when neutralized with a suitable base. The network helps to suspend and stabilize oil droplets and/or beads in the flowable composition, which is of low viscosity (viscous liquid). The hydrophobic groups of the associative polymer contribute to form micelles (polymeric micellisation), which imparts the cleansing ability to the composition by solubilizing lipophilic compounds, such as for instance, oils and hydrophobic dirt. The solubilized lipophilic compounds may then be rinsed off by the washing liquid. The cleansing ability of the present composition is further improved by the oil droplets that solubilize lipophilic substances, too.

[00039] Acrylates/Beheneth-25 Methacrylate Copolymer is supplied as a raw material; a solution containing only 30% of the polymer, the reference to active content is to the co-polymer and not the raw material.

[00040] It is preferred, if the Acrylates/Beheneth-25 Methacrylate Copolymer is available in form of an emulsion, more preferably in an emulsion containing 1 to 5 % by weight sodium laureth sulfate. Sodium laureth sulfate is present as an emulsifier and therefore present in raw materials. Further, the

presence of sodium laureth sulfate helps to solubilize the polymer and incorporate it in cosmetic compositions.

[00041] The Acrylates/Beheneth-25 Methacrylate Copolymer being an anionic copolymer, the charge density determined by calculation (theoretical charge density) is about 30 mole%. As the copolymer according to the invention, namely Acrylates/Beheneth-25 Methacrylate Copolymer, is an anionic polymer, neutralization is recommended to achieve the gel network. The neutralizing agent is selected from the group 2-Amino-2-methyl-1-propanol (AMP), 2-Amino-2-Methyl-1, 3-propandiol (AMPD), Mono Isopropanolamine, Tri-Isopropanolamine, and/or inorganic bases, such as sodium hydroxide and potassium hydroxide, preferably sodium hydroxide.

[00042] By the addition of a sufficient amount of neutralizing agent the polymer solution turns clear, usually at a pH-value of about 5.8. Advantageously, further neutralizing agent is added to the composition of the invention until a pH value is in the range of 6.5 to 7.5 is reached as illustrated in Table 3.

[00043] Acrylates/Beheneth-25 Methacrylate Copolymer may be purchased from Croda as Volarest FL. In the composition of the present invention Acrylates/Beheneth-25 Methacrylate Copolymer is contained in a total amount of 0.3 to 1.0 % by weight, preferably 0.3 to 0.6 % by weight, in relation to the total weight of the composition. The amounts are referring to the active content of the copolymer.

[00044] The composition according to the present invention contains at least oil. Oils are liquid at room temperature, in the sense of the present invention. Advantageously, the group of oils comprises hydrocarbon oils, natural oils (triglycerides), silicone oils, further synthetic oils, fatty acids and others more.

[00045] Liquid hydrocarbons may be liquid isoparaffins, squalane, and liquid paraffins. It is preferred, if liquid paraffins are contained.

[00046] Natural oils are triglycerides which are of animal or plant origin. However it is preferred if triglycerides of plant origin are contained. More preferably one or more triglyceride of plant origin is chosen from coconut oil, (sweet) almond oil (*Prunus Amygdalus* (Dulcis), walnut oil, peach kernel oil, 5 apricot kernel oil, avocado oil (*Persea Gratissima*), tea tree oil, soybean oil, sesame oil, sunflower oil (*Helianthus Annuus*), tsubaki oil, evening primrose oil, rice bran oil, palm kernel oil, mango kernel oil, cuckoo flower oil, thistle oil, macadamia nut oil, grape seed oil (*Vitis vinifera*), amaranth seed oil, argan oil, bamboo oil, olive oil (*Olea Europaea*), wheat germ oil, pumpkin seed oil, mallow 10 oil, hazelnut oil, safflower oil, canola oil, sasanqua oil, and jojoba oil.

[00047] Silicone oils may be selected from dimethicones and cyclomethicones. It is preferred, if dimethicones are contained. Dimethicones are linear polysiloxane of the structure M-D<sub>n</sub>-M. Siloxane units consist of silicium atoms bonded to oxygen atoms according to the formula R<sub>n</sub>SiO<sub>(4-n)/2</sub>, wherein R is 15 a substituent selected from hydrogen, aliphatic or aromatic groups and n=0, 1, 2, 3. Starting from the meaning of “n” it is evident, that linear, cyclic, branched, or network structures may be formed. Depending on the number of substituents at the silicium atom different siloxane units can be described:

- M (mono), M corresponds to R<sub>3</sub>SiO<sub>1/2</sub>,
- 20 – D (di), D corresponds to R<sub>2</sub>SiO<sub>2/2</sub>,
- T (tri), T corresponds to RSiO<sub>3/2</sub> and
- Q (quarto), Q corresponds to SiO<sub>4/2</sub>. Dimethicones may be characterized by viscosity values. Depending on the length of the molecule the respective viscosity increases.

25 [00048] The fatty acids may be selected from oleic acid and/or isostearic acid.

[00049] In the present invention for the skin cleansing composition, it is preferred, if the at least one oil is selected from the group of hydrocarbon oils and/or silicone oils. It is even more preferred, if at least one hydrocarbon oil and at least one silicone oil are contained.

5 [00050] The skin cleansing composition may comprise at least synthetic oil. Advantageously, the synthetic oil is a liquid polyisobutene, which is synthesized from isobutene monomers. The molecular weight of the isobutene monomer is 56, 11 g/mol. It is preferred, if the at least one polyisobutene has a molecular weight of 3, 00 to 3,000 g/mol. Most preferred is a polyisobutene which is available from  
10 Evonik Nutrition and Care GmbH under the trade name Rewopal PB 1000.

[00051] In the present invention, at least an oil is contained in a total amount of 0.1 to 3.0% by weight, preferably 0.2 to 0.8% by weight, more preferably 0.4 to 0.6% by weight in relation to the total weight of the composition. In each case the values are referring to the total amount of one or more oils  
15 contained in the composition.

[00052] Advantageously, the composition of the present invention contains at least one colorant, which is soluble in the oils mentioned above. Said oil-soluble colorants may be selected from CI 60730, CI 61565, CI 45410, and CI 47005. One or more oil soluble colorants are contained in a total amount of 0.0001  
20 to 0.1 % by weight, preferably 0.0005 to 0.001% by weight, in relation to the total weight of the composition.

[00053] In a further embodiment, the composition of the present invention contains at least one colorant, which is soluble in the aqueous phase. Said colorants may be selected from CI 42090, CI 61570, CI 16035, and CI 10316. The  
25 at least one colorant soluble in the aqueous phase is contained in a total amount of from 0.0001 to 0.1 % by weight, preferably 0.0005 to 0.001% by weight, in relation to the total weight of the composition.

[00054] In a further embodiment, the composition of the present invention may contain one or more oil-soluble colorant(s) and one or more colorant(s) soluble in the aqueous phase.

[00055] Advantageously, the composition of the present invention contains  
5 one or more moisturizers, which may be selected from glycerine, propylene glycol and/or butylene glycol. Preferably glycerine is contained. The one or more moisturizers is/are contained in an amount from 1 to 10% by weight, preferably 2 to 5 % by weight, in relation to the total weight of the composition.

[00056] The composition of the present invention is an aqueous-based one.  
10 Advantageously, aqueous-based compositions contain preservatives for ensuring anti-microbial stability. As the present composition is intended for the use as a face cleansing composition, especially for removing eye make-up, it is recommended to incorporate preservatives which are safe, effective, and at the same time are known not to show any irritative effect. Preferably, the  
15 preservatives are selected from the group of phenoxyethanol, benzethonium chloride and/or benzalkonium chloride. Additionally, further compounds may be present, which support or strengthen the effect of the preservatives. It is preferred, if said compounds are ethylhexyl glycerine and/or 1, 6-hexandiol. One or more preservative(s) and optionally the compound(s) supporting or strengthening the  
20 effect of the preservatives is/are contained in a total amount of 0.05 to 2% by weight, preferably 0.1 to 1% by weight, in relation to the total weight of the composition.

[00057] According to the invention the composition may contain additional  
25 compounds usually comprised in cosmetic compositions, for instance perfumes, antioxidants, active ingredients, vitamins and extracts from plants and others more with the proviso that these additional compounds do not counteract the present invention.

[00058] The composition according to the present invention may be prepared by any technique known or effective to prepare a cleansing composition

of the kind of the present invention. The process to prepare the composition of the present invention comprises conventional formulating and mixing techniques.

### Example 1

[00059] The compositions of the present invention are tabulated in table 2.

5 The compositions of the present invention are preferably produced with the following procedure:

- weigh the water soluble components, for instance the non-neutralized polymer suspension, moisturizer(s), preservative(s) for the water phase;
- separately weigh the oil phase components, for instance silicone oil(s), hydrocarbon oil(s) for the oil phase;
- dissolve one or more oil-soluble colorant(s) in the oil phase;
- run the mixer (for instance IKA RW 20DS22 stirrer, using paddle type blades at 50-60 rpm) and slowly neutralize the water phase by adding a neutralizing agent until the water becomes transparent, preferably at a pH range of 6.2 to 6.5; and
- add the oil phase to water phase slowly and dropwise and allow the oil phase to disperse evenly in the aqueous phase.

**Table 1: Active content of the raw components**

INCI Name	Trade Name / Active Content	Active content (%)
Glycerine	Glycerin Ph.Eur.99,8%, PF	99.8
Aqua	Water	100
Paraffinum Liquidum	Paraffin Oil BFR 0025	100

Sodium Hydroxide	Natronlauge 45%, techn. rein	45
Dimethicone	Belsil DM 100	100
Acrylates/Beheneth-25 Methacrylate Copolymer	Volarest TM FL	30
Colour	D&C Red 27,D&C Red 17,D&C Green 6	100
Phenoxyethanol	Phenoxyethanol P5	100

**Table 2: Biphasic compositions of the present invention**

	INCI name	1	2	3	4	5	6
Water Phase	Aqua	93.26	93.51	95.00	95.00	95.00	95.00
	Glycerine	4.95	4.95	4.95	4.95	4.95	4.95
Oil Phase	CI 47005			0.001	0.001	0.001	0.001
	CI 60725	0.001	0.001				
	C12-15 Alkyl Benzoate	0.10					
	Polyisobutene	0.30					
	Paraffinum Liquidum		0.20	0.3	0.4	0.5	
	Dimethicone		0.20	0.1	0.1		0.4

Rheology Modifier	Acrylates/Beheneth -25 Methacrylate Copolymer	0.45	0.45	0.45	0.45	0.45	0.45
Neutralising agent	Sodium Hydroxide	0.04	0.09	0.05	0.05	0.05	0.05
Preservative	Phenoxyethanol	0.80	0.30	0.3	0.3	0.3	0.3
	Ethylhexylglycerin	0.10					
Perfume	Fragrance		0.30	0.3	0.3	0.3	0.3

**[00060]** Tests were performed to show the cleansing effectiveness of the composition according to the invention. A gradient was set up to evaluate the cleansing effectiveness. Lipstick in fixed amount out of the range from 0.03 to 0.1 g, was applied on a human forearm on an area of 3L\*1B rectangle. 1 g of the skin cleansing composition according to Example 1 was applied to a cotton pad, being plain and having no irregularities. The cotton pad was wiped 1,2,3,4 and 5 times over the lipstick applied on the forearm. A picture is taken and the amount of remaining lipstick was evaluated by comparison with the area of lipstick, which was untreated. The evaluation was expressed in % values as shown in Figure 1a.

**[00061]** Lipstick was applied on a human forearm in the same manner and the same amount as done for the setting up of the gradient for figure 1(a). A polymer solution (corresponding to the water phase of Example 1, without oil droplets) and water were compared. The polymer solution as well as water, in each case 1 g was applied on a cotton pad. The respective cotton pad, soaked with the polymer solution or water was wiped over the lipstick, applied on a human forearm, 3 times. Afterwards,

the skin of the forearm was compared to the gradient of cleansing effectiveness. It became evident that the polymer solution resulted in a cleansing effectivity of more than 80 %; that means that nearly all the lipstick was removed. Using the pad soaked with water, a cleansing effectivity of about 20 % was reached. A 100 % cleansing effectivity was reached with the cotton pad soaked with the polymer solution after 5 swipes as well as after 10 swipes. The cotton pad soaked with water could not remove the lipstick completely, even after 10 swipes the cleansing effectivity was still around 20 % as illustrated in Figure 1b.

10 **[00062]** The data show that the polymer solution containing Acrylates/Beheneth-25 Methacrylate Copolymer has a cleansing effectivity, especially a cleansing effectivity in relation to removing make-up. In addition, the oil droplets further contribute to the cleansing effect, especially of oil soluble make-up and dirt is removed.

15 **[00063]** For proving the stability of the products according to the invention, a composition according to example 1 was prepared and stored under different temperature conditions. Appearance and phase separation were evaluated by the visual impression; additionally the pH value and the viscosity were determined. The results are shown in the table 2 below.

20 **Table 3: Stability of the compositions of the present invention**

		<b>Day 0</b>	<b>Day 7</b>	<b>Day 30</b>	<b>Day 60</b>	<b>Day 90</b>	<b>Day 120</b>
<b>Room Temperature</b>	<b>Appearance</b>	Okay	okay	okay	okay	okay	okay
	<b>Separation</b>	None	none	none	none	none	none

	<b>pH</b>	6.5	6.4	6.39	6.38	6.36	n.d.
	<b>viscosity [mPas]</b>	500	550	550	550	550	550
<b>50°C</b>							
	<b>Appearance</b>		okay	okay			
	<b>Separation</b>		none	none			
	<b>pH</b>		6.4	6.41			
	<b>viscosity [mPas]</b>		550	550			
<b>40°C</b>							
	<b>Appearance</b>		okay	okay	okay	okay	okay
	<b>Separation</b>		none	none	none	none	none
	<b>pH</b>		6.38	6.35	6.39	6.33	6.38
	<b>viscosity [mPas]</b>		550	550	550	550	550
<b>6°C</b>							
	<b>Appearance</b>		okay	okay	okay	okay	okay
	<b>Separation</b>		none	none	none	none	none
	<b>pH</b>		6.4	6.41	6.4	6.41	6.39
	<b>viscosity [mPas]</b>		550	550	600	550	550
<b>-10°C</b>							
	<b>Appearance</b>		okay	okay			

	<b>Separation</b>		none	none			
	<b>pH</b>		6.4	6.4			
	<b>viscosity [mPas]</b>		550	550			
<b>-10°C</b>	<i>to</i>	<b>Appearance</b>	okay	okay			
<b>40°C**</b>			*				
	<b>Separation</b>		none	none			
	<b>pH</b>		6.4	6.4			
	<b>viscosity [mPas]</b>		550	550			

okay = the appearance did not change

separation = phase separation

\* immediately after removal from the incubator the product was hazy, but after having room temperature the appearance of the sample was the same as at Day 0.

\*\* A chamber where temperature is maintained at -10°C for 12 hours and then the temperature switches automatically to 40°C for next 12 hours.

[00064] The results shown in the table 3 reveal that the analyzed composition is stable under various conditions, having a nearly constant viscosity and pH value.

[00065] Furthermore, tests were performed to analyze the mildness of the products composition of the invention. The compositions are prepared according to the procedure of Example 1.

[00066] A HET test is conducted to show the potential irritancy of  
5 compounds by observing changes, which occur in the chorioallantoic membrane of an egg after exposure to test chemicals. Chemicals are placed directly onto the chorioallantoic membrane of the hen's egg. The occurrence of vascular injury (haemorrhage) or coagulation in response to a compound is the basis for employing this technique as an indication of the  
10 potential of a chemical to damage mucous membranes (in particular the eye) in vivo.

[00067] The HET-CAM assay has been designed to assess the acute irritation potential of a test substance to mucous membranes by using fertilized and hatched hen's eggs. The potential irritancy of chemicals and  
15 their dilutions can be detected by observing adverse changes, which occur in the chorioallantoic membrane of the egg after exposure to test chemicals. Fertile White Leghorn chicken eggs are incubated at 37.5°C ( $\pm$  0.5°C) and relative humidity of 62.5 % ( $\pm$  7.5 %) for nine to ten days. The egg shell is opened at the air cell pole and the inner membrane is removed carefully to  
20 free the chorioallantoic membrane (CAM). 300  $\mu$ l of liquid or 100 mg of solid test sample are applied to the surface of the CAM and incubated for five minutes. During this time the membrane is examined for any damage and the time is recorded at which reactions appear. Furthermore the degree of severity for each reaction is assessed (no, slight, moderate or severe  
25 reaction). Most common reactions are haemorrhages (bleeding), vascular lysis (blood vessel disintegration) and coagulation (intra- and extra-vascular). The most important reactions are the coagulations, in particular the extra-vascular coagulation which resembles cornea opacity in the Draize test. Test samples are tested on three eggs per concentration, usually

undiluted and at 10 % dissolved in 0.9 % sodium chloride solution or olive oil.

[00068] In comparison to the composition according to Example 1 a market product was analyzed, too. The market product was Garnier Skin  
 5 Naturals Micellar Oil-Infused Cleansing Water, of which the complete product after being shaken, the water phase and the oil phase were tested. The results are summarized in the table 3 below:

**Table 4: Test for irritancy of the compositions of the present invention**

HET-CAM		
Samples	Concentration	Reactions
Composition according to Example 1	100%	no reactions
Garnier Skin Naturals Micellar Oil-Infused Cleansing Water	mixed water phase oil phase	no reactions

10 [00069] The results in Table 4 show, that the composition according to Example 1 does not reveal any potential irritancy.

[00070] Additionally a RBC assay was conducted to measure the cell membrane destroying and protein denaturing properties of the compositions of Example 1 by measuring the release of hemoglobin  
 15 (hemolysis) and the spectral changes of hemoglobin (protein denaturation) from bovine erythrocytes. In a first step defined aliquots of bovine erythrocytes are incubated by shaking for one hour at room temperature with increasing concentrations of test sample (1, 10, 100, 1000, 10000, 100000 mg/l in PBS at pH 7.4). After centrifugation the spectral absorption

of released hemoglobin is determined photometrically at 541 nm in the resulting supernatants (extracellular hemoglobin). The cells of the pellet are lysed with water and the spectral absorption of this solution (intracellular hemoglobin) is also determined at 541 nm.

5 [00071] The  $D_{low}$  (threshold concentration [mg/l] > 10% denaturation) and the  $D_{max}$  (maximum denaturation [%]) are calculated from the change of total hemoglobin absorption (intra- and extracellular) in comparison to the total native hemoglobin ( $HbO_2$ ) of the 100% control.

[00072] In a second step defined aliquots of bovine erythrocytes are  
10 incubated in the same way as before with a series of narrow concentrations chosen from the compositions from Example 1. After centrifugation the hemoglobin concentration of the resulting supernatants is determined photometrically on 541 nm and the relative hemolysis release is calculated. The  $H_{50}$  [mg/l], indicating the concentration at which 50 % of the  
15 hemoglobin is released, is determined from the concentration-response curve.

[00073] Based on the  $H_{50}$  value, different prediction models for surfactants and surfactant-based formulations for the prediction of the eye irritation potential corresponding to the MMAS score of the Draize Eye  
20 Irritation Test were defined. The most relevant for this test of a raw material would be the prediction model for surfactants (prediction model 2.1, Pape et al., 1999). The results of the COLIPA validation study suggest that in general  $H_{50}$  values > 5,000 to 10,000 mg/l indicate that the test material is not or only minimally irritant to eyes.

25 [00074] Additional criteria to classify the eye irritation potential based on the protein denaturation were defined in the standard operating procedure. Accordingly, a maximal denaturation ( $D_{max}$ )  $\geq$  50% accompanied by a denaturation threshold value ( $D_{low}$ ) of  $\leq$  10,000 mg/l a

potential of severe eye irritation. The results of are summarized in the table 5 below:

**Table 5: Results for Protein denaturation to measure Irritation for eye**

RBC Assay			
Samples	H <sub>50</sub> [mg/l]	D <sub>max</sub> (%)	D <sub>low</sub> [mg/l]
Composition according to example 1	> 100.00	< 10	> 100,000
Garnier Skin Naturals Micellar Oil-Infused Cleansing Water	18,880	< 10	> 100,000

[00075] The results reveal that composition of the present invention and  
 5 Garnier Skin Naturals Micellar Oil-Infused Cleansing Water samples are not irritative.

[00076] The composition of the invention containing oil soluble colorants formulated in accordance with Example 1 has an interesting and appealing appearance with colored oil droplets distributed uniformly in  
 10 isotropic aqueous phase as shown in Figure 2.

[00077] The compositions of the invention are very satisfying products in relation to mildness. No irritations of the face skin, especially around the eye area were observed upon usage of the compositions according to the present invention.

15 [00078] While particular embodiments of the present invention are 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 thereof intended to cover in the appended claims such changes and modifications that are within the scope of the invention.

**We claim:**

1. A skin cleansing composition comprising visually distinct biphasic composition containing an aqueous phase and an oil phase dispersed in the aqueous phase, wherein the skin cleansing  
5 composition, comprises:
  - an oil agent in an amount from 0.1 to 3.0% (w/w) selected from the group comprising hydrocarbon oils, natural oils, synthetic oils, silicone oils and fatty acids;
  - an anionic Methacrylate Copolymer in an amount from 0.3  
10 to 1.0 % (w/w) and the active content of the copolymer;
  - a neutralizing agent ;
  - a moisturizing agent in an amount from 1 to 10% (w/w);
  - a colorant in an amount from 0.0001 to 0.1% (w/w);
  - a preservative and co-preservative in amount from 0.05 to  
15 2% (w/w); and
  - water in an amount from 90 to 97 % (w/w).
2. The skin cleansing composition as claimed in claim 1, wherein  
20 mass ratio of aqueous phase to the oil phase is in range from 9:1 to 999:1.
3. The skin cleansing composition as claimed in claim 2, wherein  
25 mass ratio of aqueous phase to the oil phase is in range from 33:1 to 99:1.
4. The skin cleansing composition as claimed in claim 1, wherein  
viscosity of said skin cleansing agent is in range from 800 to 2000  
cps at 25 °C.

5. The skin cleansing composition as claimed in claim 4, wherein viscosity of said skin cleansing agent is in range from 1300 to 1700 cps at 25°C.
- 5 6. The skin cleansing composition as claimed in claim 1, wherein the oil agent is present in a range from 0.2 to 0.8%(w/w), more preferably from 0.4 to 0.6% (w/w).
7. The skin cleansing composition as claimed in claim 1, wherein the  
10 hydrocarbon oil selected from the group comprising of liquid isoparaffins, squalane and liquid paraffins.
8. The skin cleansing composition as claimed in claim 7, wherein the hydrocarbon oil is liquid paraffins.
- 15 9. The skin cleansing composition as claimed in claim 1, wherein the natural oil is triglyceride of animal origin.
10. The skin cleansing composition as claimed in claim 1, wherein the  
20 natural oil is triglyceride of plant origin.
11. The skin cleansing composition as claimed in claim 10, wherein the triglyceride of plant origin is selected from the group comprising of coconut oil, (sweet) almond oil (*Prunus Amygdalus* (Dulcis)),  
25 walnut oil, peach kernel oil, apricot kernel oil, avocado oil (*Persea Gratissima*), tea tree oil, soybean oil, sesame oil, sunflower oil (*Helianthus Annuus*), tsubaki oil, evening primrose oil, rice bran oil, palm kernel oil, mango kernel oil, cuckoo flower oil, thistle oil, macadamia nut oil, grape seed oil (*Vitis vinifera*), amaranth seed  
30 oil, argan oil, bamboo oil, olive oil (*Olea Europaea*), wheat germ

oil, pumpkin seed oil, mallow oil, hazelnut oil, safflower oil, canola oil, sasanqua oil, and jojoba oil.

- 5 12. The skin cleansing composition as claimed in claim 1, wherein the synthetic oil is liquid polyisobutene of molecular weight in range from 300 to 3,000 (g/mol).
- 10 13. The skin cleansing composition as claimed in claim 1, wherein the silicone oil is selected from dimethicones and cyclomethicones.
14. The skin cleansing composition as claimed in claim 1, wherein the fatty acid is selected from oleic acid, isostearic acid and mixture thereof.
- 15 15. The skin cleansing composition as claimed in claim 1, wherein the oil agent is hydrocarbon oil, silicone oil and mixture thereof.
- 20 16. The skin cleansing composition as claimed in claim 1, wherein the anionic Methacrylate Copolymer is Acrylates/Beheneth-25 Methacrylate copolymer present in a range from 0.3 to 0.6% (w/w).
- 25 17. The skin cleansing composition as claimed in claim 16, wherein the acrylates/Beheneth-25 Methacrylate Copolymer is in form of an emulsion.
18. The skin cleansing composition as claimed in claim 17, wherein the acrylates/Beheneth-25 Methacrylate Copolymer is in form of an emulsion comprising 1 to 5 % by weight sodium laureth sulfate.
- 30 19. The skin cleansing composition as claimed in claim 1, wherein the neutralizing agent is selected from the group comprising of

2-amino-2-methyl-1-propanol (AMP), 2-amino-2-methyl-1,3-propanediol (AMPD), mono-isopropanolamine, tri-isopropanolamine, inorganic bases sodium hydroxide and potassium hydroxide, and mixture thereof.

5

20. The skin cleansing composition as claimed in claim 19, wherein the neutralizing agent is sodium hydroxide.
21. The skin cleansing composition as claimed in claim 19, wherein the neutralizing agent facilitates in neutralization of anionic methacrylate copolymer for formation of gel network.
- 10
22. The skin cleansing composition as claimed in claim 1, wherein the moisturizing agent is present in a range from 2 to 5% (w/w).
- 15
23. The skin cleansing composition as claimed in claim 22, wherein the moisturizing agent is selected from the group comprising of glycerin, propylene glycol, butylene glycol and mixture thereof.
- 20
24. The skin cleansing composition as claimed in claim 23, wherein the moisturizing agent is glycerin.
- 25.
25. The skin cleansing composition as claimed in claim 1, wherein the colorant is oil soluble.
- 25
26. The skin cleansing composition as claimed in claim 25, wherein the oil soluble colorant is selected from the group comprising of CI42090, CI61570, CI16035, CI 10316 and mixture thereof.
- 30
27. The skin cleansing composition as claimed in claim 1, wherein the colorant is aqueous phase soluble.

28. The skin cleansing composition as claimed in claim 27, wherein the aqueous soluble colorant is selected from CI 42090, CI 61570, CI 16035, and CI 10316.
- 5
29. The skin cleansing composition as claimed in claim 1, wherein the oil soluble colorant and aqueous phase soluble colorant is present in a range from 0.0005 to 0.001% (w/w).
- 10
30. The skin cleansing composition as claimed in claim 1, wherein the preservative and co-preservative is in range from 0.1 to 1% (w/w).
31. The skin cleansing composition as claimed in claim 30, wherein the preservative is selected from the group comprising of phenoxyethanol, benzethonium chloride, benzalkonium chloride and mixture thereof, preferably phenoxyethanol.
- 15
32. The skin cleansing composition as claimed in claim 30, wherein the co-preservative facilitates in strengthening the effect of the preservatives.
- 20
33. The skin cleansing composition as claimed in claim 30, wherein the co-preservative is selected from the group comprising of ethylhexyl glycerine, 1,6-hexandiol and mixture thereof.
- 25
34. The skin cleansing composition as claimed in claim 1, wherein the water is in range from 91 to 93% (w/w).
- 30
35. The skin cleansing composition as claimed in claim 1, wherein the pH of said composition is in range from 6.5 to 7.5.

36. The skin cleansing composition as claimed in claim 1, wherein the skin cleansing composition comprises at least one of: perfume, antioxidants, active ingredients, vitamins, extracts from plants and mixture thereof.
- 5
37. The skin cleansing composition as claimed in claim 1, wherein the skin cleansing composition is having an isotropic liquid phase wherein the oil droplets are dispersed in the liquid phase.
- 10 38. A method for cleansing face and removing make-up comprising the skin cleansing composition as claimed in claim 1, wherein said composition is applied to skin having make up thereon to remove cosmetic composition.

15

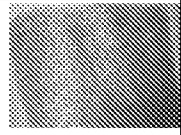
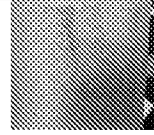
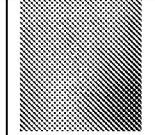
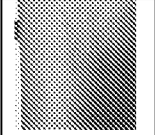
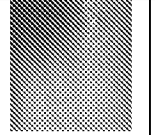
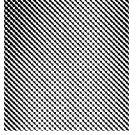
Setting up a gradient for evaluating the cleansing ability, using a lipstick					
Untreated	20%	40%	60%	80%	100%
					

Figure 1a

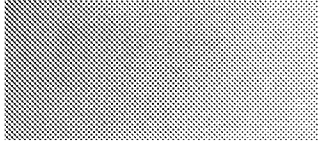
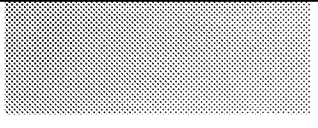
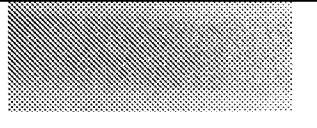
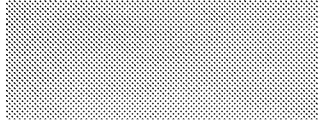

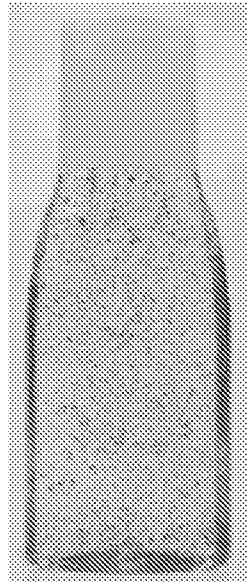
Cotton pad soaked with Number of swipes with the cotton pad	Polymer solution	Water
	3 swipes	
5 swipes		
10 swipes		

Figure 1b



5

**Figure 2**

# INTERNATIONAL SEARCH REPORT

International application No PCT/IB2019/056279
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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. A61K8/06      A61K8/81      A61Q1/14      A61Q19/00 ADD.				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols) A61K A61Q				
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				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 2011/110989 A1 (SIMONNET JEAN-THIERRY [US] ET AL) 12 May 2011 (2011-05-12) paragraphs [0001], [0008], [0013], [0139], [0307], [0309], [0323], [0330] examples 15,16  -----	1-38		
X	EP 2 505 181 A2 (JOHNSON & JOHNSON CONSUMER [US]) 3 October 2012 (2012-10-03) paragraphs [0001], [0005], [0010]  -----	1-38		
X	US 2015/328127 A1 (CHEN JENRU [JP] ET AL) 19 November 2015 (2015-11-19) cited in the application paragraphs [0003], [0041] - [0043]; claim 5; example 7  -----	1-38		
----- -/--				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;">                     "A" document defining the general state of the art which is not considered to be of particular relevance                      "E" earlier application or patent but published on or after the international filing date                      "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)                      "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                 </td> <td style="width: 50%; border: none; vertical-align: top;">                     "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                      "&amp;" document member of the same patent family                 </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "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) "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
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "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) "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			
26 November 2019	06/12/2019			
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Simon, Frédéric			

**INTERNATIONAL SEARCH REPORT**

International application No PCT/IB2019/056279
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	R. Galleguillos ET AL: "COMPLEX INTERACTIONS OF A HYPER-HASE POLYMER WITH ANIONIC AND NONIONIC SURFACTANTS",  1 June 2011 (2011-06-01), XP055646744, Retrieved from the Internet: URL:https://www.researchgate.net/publication/311582571_COMPLEX_INTERACTIONS_OF_A_HYPER-HASE_POLYMER_WITH_ANIONIC_AND_NONIONIC_SURFACTANTS [retrieved on 2019-11-26] abstract  -----	1-38
X,P	FR 3 063 223 A1 (OREAL [FR]) 31 August 2018 (2018-08-31) claim 1 examples page 5, line 1 - line 3 page 11, line 34  -----	1-38

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Information on patent family members

International application No PCT/IB2019/056279
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FR 3063223	A1	31-08-2018	NONE
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