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(54) **CLEANER BASE, CLEANING COMPOSITION INCLUDING THE SAME, AND METHOD OF PREPARING THE CLEANING COMPOSITION**

(57) Provided are a cleaner base containing a solid composition including a solid surfactant and a water-soluble polymer, a gel-type cleaning composition having a viscosity of greater than or equal to about 50 cPs including the cleaner base containing a solid composition and water, and a method for preparing the gel-type cleaning composition.

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Description**BACKGROUND OF THE INVENTION****(a) Field of the Invention**

[0001] The present disclosure relates to a cleaner base, a cleaning composition including the cleaner base and water and having a viscosity of greater than or equal to about 50 cPs, and a method for preparing the cleaning composition.

(b) Description of the Related Art

[0002] Skin is a part of a body directly exposed to an external environment and thus does not only serve as a protective film protecting important organs of the body but also regulates moisture evaporation and protects the body from external infections. However, the skin may block penetration of viruses from the outside but when exposed to excessive UV rays, pollutants, or the like, skin irritations and inflammatory reactions such as erythema, edema, itching, and the like are caused. Accordingly, keeping the skin clean is important not only for the skin but also for the whole body.

[0003] In general, a cosmetic composition for human body cleaning includes ingredients such as surfactants, thickeners, skin conditioning agents, hair conditioning agents, oils, preservatives, fragrances, water, and the like, wherein particularly, the surfactants realize a cleaning effect of the human skin including scalp, hair, and the like and thus are of high importance.

[0004] Recently, due to plastic pollution, efforts to not use plastic containers by developing recyclable or biodegradable containers in cosmetics or household products or using solid detergents such as soap and the like are being made. However, these efforts may result in cost burden or cause inconvenience due to inferior usability compared with existing gel-type products used by customers.

[0005] Accordingly, since a composition for human body cleaning may be easily prepared in a method of mixing a solid composition and water without the plastic containers, but efforts to improve usability of the composition for a human body without deteriorating foam quality, compared with a conventional composition for human body cleaning, are being made, there is a growing trend of consumers who are willing to choose a composition for human body cleaning that emphasizes eco-friendliness, as long as it keeps equivalent cleaning power or foam quality to the conventional products.

SUMMARY OF THE INVENTION

[0006] An embodiment provides a cleaner base containing a solid composition that does not require a plastic container and is environmentally friendly, and can provide a cleaning composition having excellent foam quality and feeling of use.

[0007] Another embodiment provides a gel-type cleaning composition having a viscosity of greater than or equal to about 50 cPs, including the cleaner base containing the solid composition and water.

[0008] Another embodiment provides a method for preparing a gel-type cleaning composition having a viscosity of greater than or equal to about 50 cPs, which includes adding water to the cleaner base containing the solid composition.

[0009] According to an embodiment, a cleaner base containing a solid composition including a solid surfactant and a water-soluble polymer is provided.

[0010] The solid composition may be a powder type.

[0011] The solid surfactant may include an anionic surfactant, an amphoteric surfactant, a nonionic surfactant, or a combination thereof.

[0012] The solid surfactant may include an anionic surfactant and an amphoteric surfactant.

[0013] The solid surfactant may include an anionic surfactant and a nonionic surfactant.

[0014] The solid surfactant may include an amphoteric surfactant and a nonionic surfactant.

[0015] The anionic surfactant may include at least one anionic surfactant, for example one or more types of anionic surfactants, the amphoteric surfactant may include at least one amphoteric surfactant, for example one or more types of amphoteric surfactants, and the nonionic surfactant may include at least one nonionic surfactant, for example one or more types of nonionic surfactants.

[0016] The anionic surfactant may include at least one, for example two types selected from a sulfate-based anionic surfactant, a sulfonate-based anionic surfactant, a glutamate-based anionic surfactant, a glycinate-based anionic surfactant, a taurate-based anionic surfactant, an alaninate-based anionic surfactant, a sulfosuccinate-based anionic surfactant, a carboxylate-based anionic surfactant, a phosphate-based anionic surfactant, or a sarcosinate-based anionic surfactant. The amphoteric surfactant may be at least one, for example two types selected from a betaine-based surfactant, a sultaine-based (sulfobetaine-based) amphoteric surfactant, or a propionate-based amphoteric surfactant. The nonionic surfactant may include at least one, for example two types selected from an amide-based nonionic surfactant, an amine oxide-based nonionic surfactant, a fatty alcohol nonionic surfactant, or a fatty acid nonionic surfactant.

[0017] The anionic surfactant may include a glutamate-based anionic surfactant and a sulfosuccinate-based anionic surfactant.

[0018] The glutamate-based anionic surfactant may be included in an amount of greater than that of the sulfosuccinate-based anionic surfactant.

[0019] The sulfosuccinate-based anionic surfactant may be included in an amount of about 30 parts by weight to about 50 parts by weight based on 100 parts by weight of the glutamate-based anionic surfactant.

[0020] The water-soluble polymer may include a polysaccharide, a gum, an acrylic polymer, a polyquaternium-based polymer, a guar-based polymer, or a combination thereof.

[0021] The polysaccharide may include a phosphate-based polymer.

[0022] The gum may include a xanthan gum, a tamarind seed gum, or a combination thereof.

[0023] The acrylic polymers may include ammonium acryloyl dimethyl taurate/VP copolymer.

[0024] The polyquaternium-based polymer may include polyquaternium-10.

[0025] The guar-based polymer may include guarhydroxypropyltrimmonium chloride.

[0026] The solid surfactant may be included in an amount equal to or greater than that of the water-soluble polymer.

[0027] The solid surfactant and the water-soluble polymer may be included in a weight ratio of about 1:1 to about 14:1.

[0028] The gum may be a tamarind seed gum, and the solid surfactant and the tamarind seed gum may be included in a weight ratio of about 1:1 to about 7:1.

[0029] The cleaner base may be a cleaner base for preparing a gel-type cleaning composition having a viscosity of greater than or equal to about 50 cPs.

[0030] According to another embodiment, a gel-type cleaning composition having a viscosity of greater than or equal to about 50 cPs, including the cleaner base containing the solid composition, and water, is provided.

[0031] The water may be included in an amount equal to or greater than that of the cleaner base.

[0032] Another embodiment provides a method for preparing a gel-type cleaning composition having a viscosity of greater than or equal to about 50 cPs, including adding water to the cleaner base containing the solid composition.

[0033] The solid composition in the cleaner base according to an embodiment serves as a highly concentrated solid powder cleaner base, and when it is mixed with a certain amount of water and diluted, it has a viscosity above a certain level, so that a gel-type cleaning composition with excellent ease of use may be prepared directly.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0034] Hereinafter, exemplary embodiments of the present disclosure will be described in detail, and may be easily performed by a person having ordinary skill in the related art. However, this disclosure may be embodied in many different forms.

[0035] As used herein, when specific definition is not otherwise provided, "combination" refers to mixing or copolymerization.

[0036] Hereinafter, a cleaner base containing a solid composition according to an embodiment is described.

[0037] Recently, due to environmental pollution of plastics, efforts to not use plastic containers by developing containers to be recyclable or biodegradable in cosmetics or household products or using solid cleaners such as soaps and the like are being made. However, these efforts may result in a cost burden or bring about inconvenience due to inferior usability to a gel-type cleaner used by existing customers.

[0038] Accordingly, the present inventors have repeated research in various ways to provide an eco-friendly and easy-to-use cleaner that meets the recent issues as described above and as a result, found that when a solid surfactant and a water-soluble polymer are used to prepare a solid composition, the solid composition is easily thickened just through a mixing process with water, so that anyone may prepare a gel composition, completing the present invention.

[0039] Specifically, the cleaner base containing a solid composition according to an embodiment, for example, a highly concentrated powder-type formulation is diluted in water to prepare a gel-type cleaner in an existing container used by consumers, which may maintain usability and quality but use no plastic container at all. The existing container is classified into an one-touch type, a pump type, a tube type, a jar type, etc., and the cleaner base containing the solid composition according to an embodiment may be placed in the existing container, and then water is just added thereto to prepare the gel-type cleaner, wherein the solid composition is controlled with respect to a composition so that the prepared gel-type cleaning composition may have, for example, viscosity of greater than or equal to about 50 cPs at room temperature (about 25 °C). When the cleaning composition has viscosity of less than about 50 cPs, the feeling of use is greatly deteriorated, which is not suitable.

[0040] A solid composition included in a cleaner base according to an embodiment includes a solid surfactant and a water-soluble polymer.

[0041] For example, the solid composition may be a powder type, and may be a tablet type, a jelly type, etc. as well as the powder type.

[0042] For example, the solid surfactant may include an anionic surfactant, an amphoteric surfactant, a nonionic

surfactant, or a combination thereof.

[0043] The solid surfactant may include an anionic surfactant and an amphoteric surfactant.

[0044] The solid surfactant may include an anionic surfactant and a nonionic surfactant.

[0045] The solid surfactant may include an amphoteric surfactant and a nonionic surfactant.

[0046] The solid surfactant may include one or more types of anionic surfactants, one or more types of amphoteric surfactants, one or more types of nonionic surfactants, or a combination thereof.

[0047] For example, the anionic surfactant may include a sulfate-based surfactant, a sulfonate-based surfactant, a glutamate-based surfactant, a glycinate-based surfactant, a taurate-based surfactant, an alaninate-based surfactant, a sulfosuccinate-based surfactant, a carboxylate-based surfactant, a phosphate-based surfactant, a sarcosinate-based surfactant, and the like, and the anionic surfactant may be in a form of a solid powder.

[0048] In addition, it may further include an amphoteric surfactant, a nonionic surfactant, or a combination thereof as an auxiliary surfactant together with the anionic surfactant. The amphoteric surfactant may include a betaine-based surfactant, a sultaine-based (sulfobetaine-based) surfactant, a propionate-based surfactant, etc. and the nonionic surfactant may include an amide-based surfactant, an amine oxide-based surfactant, a fatty alcohol surfactant, a fatty acid surfactant, etc.

[0049] The amphoteric surfactant and the nonionic surfactant may also be in a form of a solid powder.

[0050] For example, the solid surfactant may include one or more, for example two or more, for example two types of anionic surfactants. Herein, the two types of anionic surfactants may be a glutamate-based anionic surfactant and a sulfosuccinate-based anionic surfactant.

[0051] For example, the glutamate-based anionic surfactant may be included in an amount of greater than that of the sulfosuccinate-based anionic surfactant. Specifically, the sulfosuccinate-based anionic surfactant may be included in an amount of about 30 parts by weight to about 50 parts by weight based on 100 parts by weight of the glutamate-based anionic surfactant. When the glutamate-based anionic surfactant and the sulfosuccinate-based anionic surfactant are used in the same contents as above, when the cleaner base containing the solid composition according to an embodiment

is mixed with water, viscosity may be easily controlled to be greater than or equal to about 50 cPs at room temperature. **[0052]** For example, the water-soluble polymer may be a water-soluble thickening polymer that may be easily thickened by diluting the water-soluble polymer in water, for example, by mixing by hand or shaking in a container, but not by a mechanical force and specifically, may include polysaccharide, gum, an acrylic polymer, a polyquaternium-based polymer, a guar-based polymer, or a combination thereof.

[0053] For example, the polysaccharide may include a cellulose-based polymer, a phosphate-based polymer, or a combination thereof. Specifically, the polysaccharide may include a phosphate-based polymer, for example hydroxypropyl starch phosphate.

[0054] For example, the gum may include a xanthan gum, a gellan gum, a tamarind seed gum, or a combination thereof. Specifically, the gum may include a xanthan gum, a tamarind seed gum, or a combination thereof.

[0055] For example, the acrylic polymer may include an ammonium acryloyl dimethyl taurate/VP copolymer.

[0056] For example, the polyquaternium-based polymer may include polyquaternium-10.

[0057] For example, the guar-based polymer may include guarhydroxypropyltrimmonium chloride.

[0058] For example, the solid surfactant may be included in an amount equal to or greater than that of the water-soluble polymer. Specifically, the solid surfactant and the water-soluble polymer may be included in a weight ratio of about 1:1 to about 14:1. When the solid surfactant and the water-soluble polymer are included in the same amounts as above, viscosity at room temperature may be easily controlled to be greater than or equal to about 50 cPs, when the solid composition in a cleaner base according to an embodiment is mixed with water.

[0059] For example, the gum is tamarind seed gum, wherein the solid surfactant and the tamarind seed gum may be included in a weight ratio of about 1:1 to about 7:1. When the gum is the tamarind seed gum, and the solid surfactant is included at 7 times more than that of the tamarind seed gum, viscosity at room temperature may be lowered to less than about 50 cPs, which is undesirable.

[0060] On the other hand, the solid composition itself may be a highly concentrated solid powder cleaner base. Particularly, the cleaner base according to an embodiment is mixed with water to prepare a gel-type cleaning composition (or a cleaner) that can be stored for a long time, which clearly differs from a conventional powder-type cleaner, that is, a cleaner of directly using foam created by putting powder in hands and mixing it with water. While the conventional powder-type cleaner forms bubbles when mixed with water, it has to be immediately used but cannot be stored for a long time, but the cleaner base according to an embodiment is just mixed with water to easily prepare a gel-type cleaner, and in addition, the gel-type cleaner has to be contained in a foaming pump container to create foam and thus can be stored for a long time when once easily made by a user, which are completely different from the conventional powder-type cleaner.

[0061] For example, the cleaner base may be a cleaner base for preparing a gel-type cleaning composition (or cleaner) having a viscosity of greater than or equal to about 50 cPs.

[0062] Another embodiment provides a cleaning composition having a viscosity of greater than or equal to about 50

cPs, including the cleaner base containing the solid composition and water.

[0063] The cleaning composition necessarily has viscosity of greater than or equal to about 50 cPs, wherein the viscosity is viscosity at room temperature (about 25 °C). When the cleaning composition has viscosity in the above range, a gel-type composition may be formed through thickening. It is very important that the cleaning composition has viscosity within the range, because excellent foam quality or feeling of use is secured, only when the gel-type composition is formed.

[0064] For example, the cleaning composition may have a viscosity of greater than or equal to about 80 cPs, for example greater than or equal to about 500 cPs, for example greater than or equal to about 1000 cPs, for example greater than or equal to about 2000 cPs, for example greater than or equal to about 3000 cPs, for example greater than or equal to about 4000 cPs, for example, greater than or equal to about 5000 cPs, or for example greater than or equal to about 6000 cPs, at room temperature (25 °C).

[0065] For example, the cleaning composition may have a viscosity of less than or equal to about 500000 cPs, for example less than or equal to about 450000 cPs, for example less than or equal to about 400000 cPs, for example less than or equal to about 350000 cPs, or for example less than or equal to about 300000 cPs at room temperature (25 °C).

[0066] For example, the cleaning composition may be a gel type.

[0067] For example, the water may be included in an amount of equal to or greater than that of the cleaner base containing the solid composition. Specifically, the cleaner base containing the solid composition and the water may be included in a weight ratio of about 1:9 to about 5:5, and as long as foam quality and feeling of use are maximized by appropriately controlling the viscosity at room temperature of the gel-type cleaning composition, the solid composition and water may be included in any weight ratio.

[0068] In addition, another embodiment provides a method of preparing a cleaning composition with viscosity of greater than or equal to about 50 cPs, which includes adding water to the cleaner base containing the solid composition.

[0069] Herein, the cleaning composition may be a gel type, and the water and the cleaner base containing the solid composition may be mixed within the same content range as above.

[0070] Since the method of preparing the cleaning composition is just adding water to the cleaner base containing the solid composition, which a consumer alone may very easily perform without buying an unnecessary plastic container for using the cleaning composition, the more the solid composition according to an embodiment and a cleaning composition including the same are used according to this preparing method, the less plastic is naturally used, and accordingly, the solid composition according to an embodiment and the cleaning composition including the same are very environmentally-friendly.

[0071] Hereinafter, the present invention will be described in more detail through examples and comparative examples. These examples are provided only for understanding the present invention, but the scope of the present invention is commonly known in the art may be performed. They may be included in the scope of the present invention.

Preparation of Cleaner Base

[0072] Cleaner bases were prepared to have each composition shown in Table 1.

(Table 1)

(unit: g)												
	Component	Prep. Ex. 1	Prep. Ex. 2	Prep. Ex. 3	Prep. Ex. 4	Prep. Ex. 5	Prep. Ex. 6	Prep. Ex. 7	Prep. Ex. 8	Prep. Ex. 9	Prep. Ex. 10	Prep. Ex. 11
Surfactant	Sodium lauroyl glutamate	5	5	5	5	5	5	5	5	5	5	5
	Disodium lauryl sulfosuccinate	2	2	2	2	2	2	2	2	2	2	2
Polymer	Polysaccharide	1	-	-	-	-	-	-	-	-	-	-
	Hydroxyethyl cellulose	-	7	-	-	-	-	-	-	-	-	-
	Hydroxypropyl starch phosphate	-	-	-	-	-	-	-	-	-	-	-
	Xanthan gum	-	-	1	-	-	-	-	-	-	-	-
Gum	Gellan gum	-	-	-	1	-	-	-	-	-	-	-
	Tamarind seed gum	-	-	-	-	3	-	-	-	-	1	0.5
	Carbomer	-	-	-	-	-	1	-	-	-	-	-
	Ammonium acryloyldimethyltaurate/VP copolymer	-	-	-	-	-	-	3	-	-	-	-
Polyquaternium-based	polyquaternium-10	-	-	-	-	-	-	-	1	-	-	-
	Guarhydroxypropyltrimonium chloride	-	-	-	-	-	-	-	-	1	-	-

Preparation of Cleaning Composition 1

[0073] Each cleaner base according to Preparation Examples 1 to 11 and water were mixed in a weight ratio of 1:9 to prepare cleaning compositions, and the cleaning compositions were measured with respect to viscosity at 25 °C by using a Brookfield viscometer LV (No. 3 spindle, 12 rpm) and also, examined regarding whether or not the solid compositions were respectively separated (stability) in the aqueous solutions with the naked eye, and the results are shown in Table 2.

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(Table 2)

	Prep. Ex. 1	Prep. Ex. 2	Prep. Ex. 3	Prep. Ex. 4	Prep. Ex. 5	Prep. Ex. 6	Prep. Ex. 7	Prep. Ex. 8	Prep. Ex. 9	Prep. Ex. 10	Prep. Ex. 11
Viscosity (cPs)	- (Visco	11700	6130	- (Visco	7270	- (Visco	6290	2100	980	85	15
	sity is unme asura ble)			sity is unme asura ble)		sity is unme asura ble)					
Stability	separ ated	stable	stable	separ ated	stable	separ ated	stable	stable	separ ated	stable	stable

Preparation of Cleaning Composition 2

[0074] Compared with the cleaning compositions according to Preparation Examples 2, 3, 5, and 8, the cleaning compositions according to Preparation Examples 2-1, 3-1, 5-1, and 8-1 were prepared by mixing each cleaner base and water in a weight ratio of 3:7 instead of 1:9 and then, measured with respect to viscosity at 25 °C by using a Brookfield viscometer LV (No.3 spindle, 12 rpm) and also, checked regarding whether or not the cleaner bases were separated (stability) in the aqueous solutions with the naked eye, and the results are shown in Table 3.

(Table 3)

	Prep. Ex. 2-1	Prep. Ex. 3-1	Prep. Ex. 5-1	Prep. Ex. 8-1
Viscosity (cPs)	520	7500	15250	8100
Stability	stable	stable	stable	stable

Evaluation 1: Foam Quality

[0075] Ryo Jay Yang Yoon-mo shampoo (Amorepacific) and the cleaning compositions according to Preparation Examples 2, 2-1, 3, 3-1, 5, 5-1, 8, 8-1, 10, and 11 were evaluated with respect to foam quality, and the results are shown in Table 4. Specifically, shampoo bubble evaluation comparison of the cleaning compositions was conducted through a human hair tress by asking 10 female panels aged 25 to 40 years to give 9 to the best and 1 to the worst and thus evaluate bubble volumes and bubble elasticity.

(Table 4)

	Ryo Jay Yang Yoon-mo shampoo	Prep. Ex. 2	Prep. Ex. 3	Prep. Ex. 5	Prep. Ex. 8	Prep. Ex. 2-1	Prep. Ex. 3-1	Prep. Ex. 5-1	Prep. Ex. 8-1	Prep. Ex. 10	Prep. Ex. 11
Bubble volume	5	6	6	4	5	6	4	6	5	5	3
Bubble elasticity	5	7	8	5	5	5	8	7	6	4	2

[0076] Referring to Table 4, when the cleaning compositions had viscosity of less than 50 cPs at 25 °C, foam quality was deteriorated, and furthermore, the cleaning compositions according to an embodiment exhibited equal to or higher foam quality than that of a conventional gel-type cleaning composition.

Evaluation 2: Feeling of Use According to Viscosity

[0077] The panels participated in Evaluation 1 were asked to take an appropriate amount of each cleaning composition according to Preparation Examples 5, 5-1, 10, and 11 on hands or tools for use on hair or skin and to evaluate feeling of use as suitable or unsuitable. The results are shown in Table 5.

(Table 5)

	Prep. Ex. 5	Prep. Ex. 5-1	Prep. Ex. 10	Prep. Ex. 11
Viscosity (cPs)	7270	15250	85	15
Feeling of use	suitable	suitable	suitable	unsuitable

[0078] Referring to Table 5, when the cleaning composition had viscosity of less than 50 cPs at 25 °C, the cleaning composition was difficult to take on hands or tools.

[0079] The present disclosure is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

Claims

1. A cleaner base containing a solid composition, comprising
a solid surfactant and a water-soluble polymer.
2. The cleaner base of claim 1, wherein
the solid composition is a powder type.
3. The cleaner base of claim 1, wherein
the solid surfactant includes an anionic surfactant, an amphoteric surfactant, a nonionic surfactant, or a combination thereof.
4. The cleaner base of claim 3, wherein
the anionic surfactant is at least one selected from a sulfate-based anionic surfactant, a sulfonate-based anionic surfactant, a glutamate-based anionic surfactant, a glycinate-based anionic surfactant, a taurate-based anionic surfactant, an alaninate-based anionic surfactant, a sulfosuccinate-based anionic surfactant, a carboxylate-based anionic surfactant, a phosphate-based anionic surfactant, or a sarcosinate-based anionic surfactant, the amphoteric surfactant is at least one selected from a betaine-based amphoteric surfactant, a sultaine-based (sulfobetaine-based) amphoteric surfactant, or a propionate-based amphoteric surfactant, and the nonionic surfactant is at least one selected from an amide-based nonionic surfactant, an amine oxide-based nonionic surfactant, a fatty alcohol nonionic surfactant, or a fatty acid nonionic surfactant.
5. The cleaner base of claim 4, wherein
the anionic surfactant includes a glutamate-based anionic surfactant and a sulfosuccinate-based anionic surfactant,
the glutamate-based anionic surfactant is preferably included in an amount of greater than that of the sulfosuccinate-based anionic surfactant, or
the sulfosuccinate-based anionic surfactant is more preferably included in an amount of 30 parts by weight to 50 parts by weight based on 100 parts by weight of the glutamate-based anionic surfactant.
6. The cleaner base of claim 1, wherein
the water-soluble polymer includes a polysaccharide, a gum, an acrylic polymer, a polyquaternium-based polymer, a guar-based polymer, or a combination thereof,
the polysaccharide preferably includes a phosphate-based polymer,
the gum preferably includes a xanthan gum, a tamarind seed gum, or a combination thereof.
the acrylic polymer preferably includes an ammonium acryloyl dimethyl taurate/VP copolymer.
the polyquaternium-based polymer preferably includes polyquaternium-10, or
the guar-based polymer preferably includes guarhydroxypropyltrimmonium chloride.
7. The cleaner base of claim 1, wherein
the solid surfactant is included in an amount of equal to or greater than that of the water-soluble polymer.
8. The cleaner base of claim 7, wherein
the solid surfactant and the water-soluble polymer are included in a weight ratio of 1:1 to 14:1.
9. The cleaner base of claim 6, wherein
the water-soluble polymer is a tamarind seed gum, and
the solid surfactant and the tamarind seed gum are included in a weight ratio of 1:1 to 7:1.
10. The cleaner base of any one of claims 1 to 9, wherein
the cleaner base is a cleaner base for preparing a gel-type cleaning composition having a viscosity of greater than or equal to 50 cPs.
11. A gel-type cleaning composition having a viscosity of greater than or equal to 50 cPs, comprising the cleaner base

of any one of claims 1 to 10 and water.

12. The cleaning composition of claim 11, wherein
the water is included in an amount of equal to or greater than that of the cleaner base.

- 5 13. A method for preparing a gel-type cleaning composition having a viscosity of greater than or equal to 50 cPs,
comprising
adding water to the cleaner base containing the solid composition of any one of claims 1 to 10.

- 10 14. The method of claim 13, wherein
the water is included in an amount equal to or greater than that of the cleaner base.

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EUROPEAN SEARCH REPORT

Application Number

EP 22 19 4181

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2020/405587 A1 (SONG BRIAN XIAOQING [US] ET AL) 31 December 2020 (2020-12-31)	1-8, 10	INV. C11D1/10
A	* paragraph [0163;0194;0234;0272;0273]; claims 1,18; tables 2C,2D *	9,11-14	C11D1/12 C11D1/37 C11D1/83
X	CN 113 201 415 A (GUANGZHOU JOYSON CLEANING PRODUCTS CO LTD) 3 August 2021 (2021-08-03)	1-4, 6, 7, 10	C11D1/94 C11D3/22 C11D3/37
A	* page 3, paragraph 3; page 4, paragraph 6; claims 1,5,6; table 2 *	5, 9, 11-14	C11D11/00 C11D17/00 C11D17/06
X	US 2016/060578 A1 (KLINKHAMMER MICHAEL E [US] ET AL) 3 March 2016 (2016-03-03)	1, 3, 6-8, 10	
A	* paragraph [0029;0041;0046;0053;0054;0093;0112;0113;0138]; table B *	2, 4, 5, 9, 11-14	
X	WO 97/45510 A1 (SALIENT SCIENCE INC [US]; HEMKER WILFRED J [US]) 4 December 1997 (1997-12-04)	11,12	
A	* page 13, line 20 to page 14, line 2; page 14, table 1; claims 1,18-27; examples 3,6 *	1-10,13, 14	TECHNICAL FIELDS SEARCHED (IPC) C11D
The present search report has been drawn up for all claims			

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EPO FORM 1503 03.82 (P04C01)

Place of search

The Hague

Date of completion of the search

25 January 2023

Examiner

Douelle, Frédéric

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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