

Description

Title of Invention: CLEANSER COMPOSITION FOR A PUMP-FOAMER

Technical Field

[0001]

The present invention relates to a cleanser composition which is contained in a non-gas type foam-discharging container having a porous membrane, such as a pump-foamer, and is discharged as foam through the porous membrane upon using. More specifically, the present invention relates to a cleanser composition for use with a pump-foamer which provides a foam excellent in foam retention and elasticity and which also has a good stability at low temperature and causes no clogging.

Background Art

[0002]

A liquid cleanser composition which is contained in a non-gas type foam-discharging container such as a pump-foamer and is discharged as foam from the container upon using is known. This type of cleanser composition is mixed with air when it passes through a porous membrane provided in the container, and discharged in the form of foam. Higher fatty acid soaps, which are widely used as a cleansing component, have excellent foamability and

detergency. However, some higher fatty acid soaps, in particular, those derived from a long-chain fatty acid containing 12 or more carbon atoms had a problem that they may tend to cause crystal precipitation at a low temperature, resulting in clogging of the porous membrane of the pump-foamer.

[0003]

Patent Document 1 discloses a liquid cleanser composition for pump-foamers which comprises no higher fatty acid soap as a cleansing component and which comprises (a) a short-chain acyl taurine salt, (b) an amphoteric surfactant, and (c) a cationized starch, so that it causes no clogging in the container, and provides a creamy foam quality stably even at a low temperature and also exhibits a conditioning effect.

[0004]

As an example of using higher fatty acid soaps as a cleansing component, mention can be made of a cleanser composition for pump-foamers which comprises a reduced amount of 2 to 5% by mass of ionic surfactants (90% by mass of which is constituted by higher fatty acid soaps) and 20 to 60% by mass of polyhydric alcohols (comprising less than 20% by mass of propylene glycol) (see Patent Document 2). The cleanser composition disclosed in Patent Document 2 is characterized in that it not only provides an excellent foam quality and has an excellent

low temperature stability but also can be easily washed away with a small amount of water.

Prior Art Documents

Patent Documents

[0005]

Patent Document 1: JP-A-2009-292969

Patent Document 2: JP-A-2014-210720

Summary of Invention

Problem to be solved by the invention

[0006]

It is an object of the present invention to further improve the above-mentioned prior arts. The object includes to provide a cleanser composition for a pump-foamer which exhibits a sufficient cleansing ability without reducing the content of higher fatty acid soaps but, at the same time, has enough stability to cause no clogging due to crystal precipitation even when stored at a low temperature, and to provide a cleanser composition for a pump-foamer providing a foam particularly excellent in retention and elasticity properties.

Means for solving the problem

[0007]

The present inventors have conducted diligent research in order to solve the above-mentioned problem.

As a result, they have found that a cleanser composition which provides a foam excellent in retention and elasticity and causes no clogging at a low temperature can be obtained by using a predetermined ratio of higher fatty acid soaps formed from high fatty acids of different chain lengths in combination, and have thus completed the present invention.

[0008]

Accordingly, the present invention provides a cleanser composition dischargeable with a foamer container, comprising:

(a) lauryl betaine; and

(b) 4 to 15% by mass of higher fatty acid soaps formed from fatty acids having 5 to 25 carbon atoms, wherein the fatty acids having 5 to 25 carbon atoms comprise:

(b-1) 30 to 80% by mass of lauric acid, based on the total mass of fatty acids constituting the higher fatty acid soaps;

(b-2) 5 to 30% by mass of myristic acid, based on the total mass of fatty acids constituting the higher fatty acid soaps; and

(b-3) 5 to 35% by mass of at least one fatty acid selected from palmitic acid and stearic acid, based on the total mass of fatty acids constituting the higher fatty acid soaps,

wherein the ratio of the content of (a) lauryl betaine and the content of (b) the higher fatty acid soaps, $[(a)/(b)]$, is in the range of 0.4 to 1.5.

Advantageous effects of invention

[0009]

The cleanser composition according to the present invention provides such a good foam quality as the foam is excellent in retention and rich in elasticity, has an excellent stability at low temperature and causes no clogging in a pump-foamer even when stored at a low temperature.

As used herein, the term "foam retention" means that a foam of a cleanser discharged from a foamer container retains its shape without collapsing immediately after applied to and spread on the skin. The term "foam elasticity" means that a foam of a cleanser discharged from a pump-foamer exhibits a resilient feeling due to its appropriate elasticity.

Modes for carrying out the invention

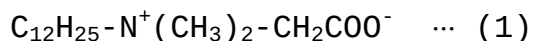
[0010]

Hereinbelow, the present invention will be described in detail.

(a) Lauryl betaine

Lauryl betaine (also referred to as N-lauryl dimethyl amino acetic acid betaine) used in the present

invention is a compound having the structure represented by the following formula (1):



[0011]

The content of lauryl betaine in the cleanser composition according to the present invention is determined based on the content of the higher fatty acid soaps described below. It is, without being limited thereto, generally 2 to 20% by mass, preferably 2.5 to 18% by mass, and more preferably 3 to 15% by mass, and may be within the range included in the above range, such as, 2 to 9% by mass, 3 to 8% by mass, or 4 to 7% by mass.

[0012]

(b) Higher fatty acid soaps

The cleanser composition according to the present invention comprises higher fatty acid soaps as a cleansing component. The higher fatty acid soaps in the present invention are formed from salts of anions of the fatty acids having 5 to 25 carbon atoms and their counter ions. The fatty acids having 5 to 25 carbon atoms are carboxylic acids having a structure in which a carboxyl group is bonded to a linear or branched saturated or unsaturated monovalent hydrocarbon group, such as an alkyl group and alkylene group, which may be optionally substituted with a hydroxyl group or the like.

[0013]

Examples of the fatty acids having 5 to 25 carbon atoms include caproic acid, heptanoic acid, caprylic acid, pelargonic acid, capric acid, undecanoic acid, lauric acid, caproleic acid, undecylenic acid, lauroleic acid, 2-ethylbutanoic acid, isopentanoic acid, 2-ethylpentanoic acid, 2-ethylhexanoic acid, isononanoic acid, 3,5,5-trimethylhexanoic acid, tridecanoic acid, tetramethylnonanoic acid, myristic acid, pentadecanoic acid, palmitic acid, stearic acid, arachic acid, behenic acid, lignoceric acid, cerotic acid, myristoleic acid, palmitoleic acid, oleic acid, elaidic acid, gondoic acid, erucic acid, selacholeic acid, linoleic acid, linolelaidic acid, linolenic acid, arachidonic acid, 2-hexyldecanoic acid, isostearic acid, 12-hydroxystearic acid, coconut acid, hydrogenated coconut acid, palm acid, hydrogenated palm acid, palm kernel acid, hydrogenated palm kernel acid, tallow acid and hydrogenated tallow acid.

[0014]

In the present invention, it is preferable to use higher fatty acid soaps formed from linear saturated fatty acids having 8 to 20 carbon atoms or 12 to 18 carbon atoms, among fatty acids having 5 to 25 carbon atoms. That is, the fatty acid soaps used in the present invention include an aspect in which no fatty acid formed from a branched fatty acid or unsaturated fatty acid is comprised.

[0015]

The cleanser composition of the present invention comprises higher fatty acid soaps formed from (b-1) lauric acid and (b-2) myristic acid and (b-3) at least one linear saturated fatty acid selected from palmitic acid and stearic acid.

[0016]

(b-1) Lauric acid

The higher fatty acid soaps in the present invention comprise a fatty acid soap formed from lauric acid, in the amount of 30 to 80% by mass in terms of lauric acid based on the total mass of fatty acids constituting the higher fatty acid soaps.

(b-2) Myristic acid

The higher fatty acid soaps in the present invention comprise a fatty acid soap formed from myristic acid, in the amount of 5 to 30% by mass in terms of myristic acid based on the total mass of fatty acids constituting the higher fatty acid soaps.

[0017]

(b-3) Palmitic acid and stearic acid

The higher fatty acid soaps in the present invention comprise a fatty acid soap formed from at least one fatty acid selected from palmitic acid and stearic acid, in the amount of 5 to 35% by mass in terms of the at least one fatty acid selected from palmitic acid and stearic acid based on the total mass of fatty acids constituting the

higher fatty acid soaps. When the total content of palmitic acid and stearic acid exceeds 35% by mass, sufficient low temperature stability may not be obtained. When the cleanser composition is used in an environment particularly requiring its low temperature stability such as cold climates in winter, the content of palmitic acid and/or stearic acid is preferably 5 to 30% by mass, more preferably 5 to 25% by mass, and still more preferably 5 to 20% by mass.

[0018]

At least one fatty acid selected from palmitic acid and stearic acid includes an aspect comprising only one of palmitic acid and stearic acid and an aspect comprising both palmitic acid and stearic acid. In an aspect comprising both palmitic acid and stearic acid, the ratio of the content of palmitic acid to the content of stearic acid, [palmitic acid/stearic acid], is preferably in the range of 0.4 to 2.5. This numerical range includes any range included in the range of 0.4 to 2.5 (such as 0.4 to 2.0 or 1.0 to 2.0) and all numerical values included in the range of 0.4 to 2.5.

[0019]

The cleanser composition according to the present invention comprises palmitic acid (having 16 carbon atoms) and/or stearic acid (having 18 carbon atoms) in addition to lauric acid (having 12 carbon atoms) and myristic acid (having 14 carbon atoms), and as a result,

provides such a foam quality as the foam has a good retention, and also has an excellent low temperature stability.

Taking into consideration that it is generally believed that crystal precipitation tends to occur as the chain length (number of carbon atoms) of a higher fatty acid increases, it is an effect which cannot be predicted by those skilled in the art that low temperature stability is improved by compounding, in addition to lauric acid and myristic acid conventionally widely used, palmitic acid and/or stearic acid having more carbon atoms.

[0020]

The counter cation for neutralizing the higher fatty acid anion is preferably an alkali metal cation, particularly preferably potassium cation. In the present invention, (b) the higher fatty acid soaps include neither arginine salts nor methyl taurine salts of fatty acids.

[0021]

The content of (b) the higher fatty acid soaps in the cleanser composition according to the present invention is 4 to 15% by mass, preferably 5 to 12% by mass, more preferably 5 to 10% by mass, and still more preferably 6 to 8% by mass. As used herein, the content of the higher fatty acid soaps means the total content of the higher fatty acids and neutralizing agents (such as potassium hydroxide).

[0022]

In the cleanser composition according to the present invention, selected from palmitic acid and stearic acid the ratio of the content of (a) lauryl betaine and the content of (b) the higher fatty acid soaps, [(a)/(b)], is in the range of 0.4 to 1.5, and more preferably 0.5 to 1.2. When this ratio is below 0.4, sufficient low temperature stability cannot be obtained.

[0023]

(c) Polyhydric alcohol

The cleanser composition according to the present invention preferably comprises a polyhydric alcohol in addition to essential components, i.e., (a) lauryl betaine and (b) the higher fatty acid soaps.

The polyhydric alcohol that may be comprised in the cleanser composition can be selected from those conventionally used in cosmetics or the like. Examples of the polyhydric alcohol include glycerin, propylene glycol, dipropylene glycol, 1,3-butylene glycol, ethylene glycol, polyethylene glycol and sorbitol.

[0024]

The content of the polyhydric alcohol is, without being limited thereto, usually 10 to 50% by mass, preferably 20 to 50% by mass, and more preferably 25 to 40% by mass.

[0025]

Among polyhydric alcohols, it is preferable to use a polyhydric alcohol with IOB = 3 to 4, because it can improve elasticity of a foam discharged from a foamer. Examples of the polyhydric alcohol with IOB = 3 to 4 include diglycerin and propylene glycol.

[0026]

The content of the polyhydric alcohol with IOB = 3 to 4 is usually 0.1 to 10% by mass, preferably 0.5 to 8% by mass, and more preferably 1 to 5% by mass, based on the total mass of the composition.

[0027]

The cleanser composition according to the present invention may comprise other optional components conventionally used in the liquid cleanser composition in an amount within the range not interfering with the effects of the present invention. Examples of the other optional component include oils, silicones, lower or higher alcohols, lanolin derivatives, protein derivatives, various drugs, microbicides, preservatives, pH adjusters, antioxidants, sequestering agents, chelating agents, animal or vegetable extracts or derivatives thereof, dyes, fragrances, pigments, organic or inorganic powders and clay minerals. The cleanser composition according to the present invention can comprise one or more components optionally selected from the above.

[0028]

The cleanser composition of the present invention is provided as a liquid having a low viscosity which is, but not limited to, 40 mPa·s or less, preferably 30 mPa·s or less and more preferably approximately 20 mPa·s as measured at a temperature of 30°C using a B type rotary viscometer.

[0029]

The cleanser composition of the present invention can be prepared using the above-mentioned essential components and optional components according to any conventional method.

[0030]

The cleanser composition of the present invention prepared is contained in a non-gas type foam-discharging container having a porous membrane. The non-gas type foam-discharging container used in the present invention may be any known type of container which can mix a given amount of a liquid cleanser composition with a given amount of air and can discharge the liquid cleanser composition in the form of foam upon using. Examples of the non-gas type foam-discharging container include a squeeze foamer to be used by pressing a body part of a soft container with fingers, and a pump-foamer to be used by pressing a head of a cap provided with a pump mechanism with a finger. Upon using, the non-gas type foam-discharging container is adapted to discharge the liquid cleanser composition in the form of foam from a

discharge port by passing the mixture of the liquid cleanser composition in the container and air through one or more porous membranes.

[0031]

Examples of the porous membrane of the pump-foamer container include a sponge, a sintered body and a net, but from the viewpoint of texture and the like, a thin net is preferable. The membrane having a mesh size of approximately 30 to 400 mesh is preferably used. The cleanser composition of the present invention is preferably contained in a container provided with two porous membranes, and even if one porous membrane has a network of 200 mesh and the other porous membrane has a fine network of 305 mesh, the cleanser composition causes no clogging and can provide a good foam quality.

[0032]

The cleanser composition of the present invention is suitably provided as a cleanser for the hair or the skin contained in a pump-foamer container in the form of a face wash, body wash, hand wash, shampoo or the like.

Examples

[0033]

Hereinafter, the present invention will be described in more detail with reference to specific examples, to which the technical scope of the present invention is not limited in any way.

The content in the following examples and the like is expressed in % by mass unless otherwise specified.

[0034]

The cleanser was prepared with the composition for each example shown in the tables according to a conventional method.

The cleanser obtained in each example was evaluated with respect to the following items according to the following criteria.

(1) Low temperature stability

The prepared cleanser composition was filled into a vial made of hard glass, stored for 24 hours and one week in an evaluation room kept at each temperature (of -10 to 5°C). Thereafter, the low temperature stability of the cleanser composition was observed visually and evaluated according the evaluation criteria.

A: Good (No precipitate/deposit or no change in appearance. No possibility of clogging)

B: Poor (precipitates/deposits, and quality defects. Possibility of clogging)

If the cleanser composition is evaluated as "A" at the time points of completion of storage at -5°C to +5°C for 24 hours and at +5°C for one week, the composition will have sufficient properties to be provided as a commercial product under a normal usage environment.

[0035]

(2) Texture test

Expert panels evaluate the foam quality (foam retention, foam elasticity) at the time of actual use by discharging the cleanser composition of each example contained in a pump-foamer container (mesh: 200 × 305) in the form of foam. The evaluation was performed according to the following criteria.

[Evaluation criteria]

A: Excellent

B: Good

C: Poor

If the cleanser composition is evaluated as A or B, the composition will have sufficient properties to be provided as a commercial product.

[0036]

(3) Viscosity measurement

For the cleanser composition prepared in each example, the viscosity at 30°C was measured using a B type viscometer (rotor No. 1; 60 rpm). The measurement results are shown in each of the following tables.

[0037]

[Table 1]

		Comparative example 1	Example 1	Example 2	Example 3	Example 4
Ion-exchanged water		Balance	Balance	Balance	Balance	Balance
Dynamite glycerin		12.5	12.5	12.5	12.5	12.5
Diglycerin		-	2	2	2	2
Dipropylene glycol		9	9	9	9	9
Sorbitol		9.1	9.1	9.1	9.1	9.1
Lauric acid		3.5	3.5	3.5	3.5	3.5
Myristic acid		0.8	0.8	0.8	0.8	0.8
Palmitic acid		0	0.3	0.39	0.45	0.54
Stearic acid		0	0	0.21	0.35	0.56
Liquid potassium hydroxide (47%) Neutralization rate: 100%		2.50	2.64	2.77	2.86	2.99
Cocoyl arginate		1.8	1.8	1.8	1.8	1.8
Sodium methyl cocoyl taurate		1.2	1.2	1.2	1.2	1.2
Lauryl betaine		4.9	4.9	4.9	4.9	4.9
Phenoxyethanol		0.35	0.35	0.35	0.35	0.35
EDTA-2Na·2H ₂ O		0.1	0.1	0.1	0.1	0.1
Perfume		0.1	0.1	0.1	0.1	0.1
Total		100	100	100	100	100
Proportion of fatty acids (%)	Lauric acid	81.40	76.09	71.43	68.63	64.815
	Myristic acid	18.60	17.39	16.33	15.69	14.815
	Palmitic acid	0	6.52	7.96	8.82	10.00
	Stearic acid	0	0	4.28	6.86	10.37
Total amount of higher fatty acid soaps (%)		5.475	5.8408	6.2019	6.4442	6.8053
Ratio of content of Lauryl betaine /content of higher fatty acid soaps		0.89	0.84	0.79	0.76	0.72
Texture	Foam retention	C	B	A	A	A
Viscosity	(No. 1, 60 rpm)	10.3	10.5	11.6	11.7	11.7
Low temperature stability	-10°C (24 hours later)	A	A	A	A	A
	-5°C (24 hours later)	A	A	A	A	A
	0°C (24 hours later)	A	A	A	A	A
	5°C (24 hours later)	A	A	A	A	A
	-10°C (1 week)	A	A	A	A	B
	-5°C (1 week)	A	A	A	A	B
	0°C (1 week later)	A	A	A	A	A
	5°C (1 week later)	A	A	A	A	A

[0038]

[Table 2]

		Example 5	Example 6	Example 7	Example 8	Example 9
Ion-exchanged water		Balance	Balance	Balance	Balance	Balance
Dynamite glycerin		12.5	12.5	12.5	12.5	12.5
Diglycerin		2	2	2	2	2
Dipropylene glycol		9	9	9	9	9
Sorbitol		9.1	9.1	9.1	9.1	9.1
Lauric acid		3.3	3	2.8	2.5	3
Myristic acid		0.8	0.8	1	1.3	0.8
Palmitic acid		0.65	0.95	0.95	0.95	1.1
Stearic acid		0.35	0.35	0.35	0.35	0.7
Liquid potassium hydroxide (47%) Neutralization rate: 100%		2.83	2.79	2.78	2.76	3.01
Cocoyl arginate		1.8	1.8	1.8	1.8	1.8
Sodium methyl cocoyl taurate		1.2	1.2	1.2	1.2	1.2
Lauryl betaine		4.9	4.9	4.9	4.9	4.9
Phenoxyethanol		0.35	0.35	0.35	0.35	0.35
EDTA-2Na·2H ₂ O		0.1	0.1	0.1	0.1	0.1
Perfume		0.15	0.15	0.15	0.15	0.15
Total		100	100	100	100	100
Proportion of fatty acids (%)	Lauric acid	64.71	58.82	54.90	49.02	53.57
	Myristic acid	15.69	15.69	19.61	25.49	14.29
	Palmitic acid	12.74	18.63	18.63	18.63	19.64
	Stearic acid	6.86	6.86	6.86	6.86	12.50
Total amount of higher fatty acid soaps (%)		6.4113	6.4066	6.4113	6.4066	6.3972
Ratio of content of Lauryl betaine /content of higher fatty acid soaps		0.76	0.76	0.76	0.76	0.77
Texture	Foam retention	A	A	A	B	A
Viscosity	(No. 1, 60 rpm)	12.2	12.3	12.4	12.5	12.6
Low temperature stability	-10°C (24 hours later)	A	A	B	B	B
	-5°C (24 hours later)	A	A	A	A	A
	0°C (24 hours later)	A	A	A	A	A
	5°C (24 hours later)	A	A	A	A	A
	-10°C (1 week)	A	B	B	B	B
	-5°C (1 week)	A	B	B	B	B
	0°C (1 week later)	A	A	A	A	B
	5°C (1 week later)	A	A	A	A	A

[0039]

[Table 3]

		Comparative example 2	Comparative example 3	Comparative example 4	Comparative example 5
Ion-exchanged water		Balance	Balance	Balance	Balance
Dynamite glycerin		12.5	12.5	12.5	12.5
Diglycerin		2	2	2	2
Dipropylene glycol		9	9	9	9
Sorbitol		9.1	9.1	9.1	9.1
Lauric acid		3	3	3	3.5
Myristic acid		0.8	0.8	0.8	0.8
Palmitic acid		1.25	1.4	1.55	0.39
Stearic acid		1.05	1.4	1.75	0.21
Liquid potassium hydroxide (47%) Neutralization rate: 100%		3.23	3.44	3.66	2.77
Cocoyl arginate		1.8	1.8	1.8	1.8
Sodium methyl cocoyl taurate		1.2	1.2	1.2	1.2
Lauryl betaine		4.9	4.9	4.9	1.86
Phenoxyethanol		0.35	0.35	0.35	0.35
EDTA-2Na·2H ₂ O		0.1	0.1	0.1	0.1
Perfume		0.15	0.15	0.15	0.1
Total		100	100	100	100
Proportion of fatty acids (%)	Lauric acid	49.18	45.46	42.25	71.43
	Myristic acid	13.12	12.12	11.27	16.33
	Palmitic acid	20.49	21.21	21.83	7.96
	Stearic acid	17.21	21.21	24.65	4.28
Total amount of higher fatty acid soaps (%)		7.6181	8.2168	8.8202	6.2019
Ratio of content of Lauryl betaine /content of higher fatty acid soaps		0.64	0.60	0.56	0.30
Texture	Foam retention	A+	A	B	Not determined
Viscosity	(No. 1, 60 rpm)	13.6	14.5	15.4	11.6
Low temperature stability	-10°C (24 hours later)	B	B	B	B
	-5°C (24 hours later)	A	B	B	B
	0°C (24 hours later)	A	A	A	A
	5°C (24 hours later)	A	A	A	A
	-10°C (1 week)	B	B	B	B
	-5°C (1 week)	B	B	B	B
	0°C (1 week later)	B	B	B	A
	5°C (1 week later)	B	B	B	A

[0040]

[Table 4]

		Comparative example 6	Example 10	Example 11	Comparative example 7	Comparative example 8
Ion-exchanged water		Balance	Balance	Balance	Balance	Balance
Dynamite glycerin		12.5	12.5	12.5	12.5	12.5
Diglycerin		2	2	2	2	2
Dipropylene glycol		9	9	9	9	9
Sorbitol		9.1	9.1	9.1	9.1	9.1
Lauric acid		2.1	4.2	5.25	6.3	3.5
Myristic acid		0.48	0.96	1.2	1.44	0.8
Palmitic acid		0.234	0.468	0.585	0.702	0.39
Stearic acid		0.126	0.252	0.315	0.378	0.21
Liquid potassium hydroxide (47%) Neutralization rate: 100%		1.66	3.33	4.16	4.99	2.77
Cocoyl arginate		1.08	2.16	2.7	3.24	1.8
Sodium methyl cocoyl taurate		1.2	1.2	1.2	1.2	1.2
Lauryl betaine		4.9	5.88	7.35	8.82	-
Cocamidopropyl betaine		-	-	-	-	4.9
Phenoxyethanol		0.35	0.35	0.35	0.35	0.35
EDTA-2Na·2H ₂ O		0.1	0.1	0.1	0.1	0.1
Perfume		0.1	0.1	0.1	0.1	0.1
Total		100	100	100	100	100
Proportion of fatty acids (%)	Lauric acid	71.43	71.43	71.43	71.43	71.43
	Myristic acid	16.33	16.33	16.33	16.33	16.33
	Palmitic acid	7.96	7.96	7.96	7.96	7.96
	Stearic acid	4.28	4.28	4.28	4.28	4.28
Total amount of higher fatty acid soaps (%)		3.7202	7.4451	9.3052	11.1653	6.2019
Ratio of content of Lauryl betaine /content of higher fatty acid soaps		1.32	0.79	0.79	0.79	0
Texture	Foam retention	C	A	B	Not determined	Not determined
Viscosity	(No. 1, 60 rpm)	8.4	14.2	25.6	62.1	9.3
Low temperature stability	-10°C (24 hours later)	A	A	A	A	B
	-5°C (24 hours later)	A	A	A	A	B
	0°C (24 hours later)	A	A	A	A	A
	5°C (24 hours later)	A	A	A	A	A
	-10°C (1 week)	A	A	A	A	B
	-5°C (1 week)	A	A	A	A	B
	0°C (1 week later)	A	A	A	A	A
	5°C (1 week later)	A	A	A	A	A

[0041]

[Table 5]

		Example 12	Example 13	Example 14
Ion-exchanged water		Balance	Balance	Balance
Dynamite glycerin		14.5	14	12.5
Diglycerin		0	0.5	2
Dipropylene glycol		9	9	9
Sorbitol		9.1	9.1	9.1
Lauric acid		3.5	3.5	3.5
Myristic Acid		0.8	0.8	0.8
Palmitic Acid		0.39	0.39	0.39
Stearic Acid		0.21	0.21	0.21
Liquid potassium hydroxide (47%) Neutralization rate: 100%		2.77	2.77	2.77
Cocoyl arginate		1.8	1.8	1.8
Sodium methyl cocoyl taurate		1.2	1.2	1.2
Lauryl betaine		4.9	4.9	4.9
Phenoxyethanol		0.35	0.35	0.35
EDTA-2Na·2H ₂ O		0.1	0.1	0.1
Perfume		0.15	0.15	0.15
Total		100	100	100
Texture	Foam retention	A	A	A
	Feeling of foam elasticity	B	A	A

[0042]

The results shown in the above Tables 1 to 4 indicate that the composition of each of Examples, which comprised higher fatty acids comprising lauric acid and myristic acid, and palmitic acid and/or stearic acid at a predetermined ratio according to the present invention and comprised a predetermined ratio of Lauryl betaine (N-lauryl dimethyl amino acetic acid betaine) relative to higher fatty acid soaps, not only had an excellent low temperature stability and caused no clogging but also

provided a foam having excellent in foam retention. On the other hand, the composition of Comparative Example 1 comprising neither palmitic acid nor stearic acid provided a foam having poor in foam retention.

Sufficient low temperature stability was not provided by the compositions of Comparative Examples 2 to 4 in which the content ratio did not satisfy the requirement of the present invention (in which the total content of palmitic acid and stearic acid was more than 35% by mass), and the composition of Comparative Example 5 in which the ratio of the content of Lauryl betaine (N-lauryl dimethyl amino acetic acid betaine) to the content of the higher fatty acid soaps was out of the scope of the present invention (0.4 to 1.5).

[0043]

The cleanser composition of Comparative Example 6 in which the content of (b) the higher fatty acid soaps was less than 4% by mass provided a foam poor in foam retention similar to that of Comparative Example 1, and the cleanser composition of Comparative Example 7 which had a viscosity higher than 30 mPa·s was difficult to be discharged from the pump-foamer. Also, the cleanser composition of Comparative Example 8 in which cocamidopropyl betaine was used in place of Lauryl betaine (N-lauryl dimethyl amino acetic acid betaine) was poor in low temperature stability. In addition, it was confirmed that as compared with the cleanser composition

of Example 9 comprising palmitic acid and stearic acid as fatty acids constituting higher fatty acid soaps at a total content of palmitic acid and stearic acid of not less than 30% by mass, the composition of each of Examples 4 and 6 to 8 in which the total content of palmitic acid and stearic acid was 20 to 30% by mass and Examples 2, 3 and 5 in which the total content was not more than 20% by mass did not cause precipitation and the like even under more severe low temperature conditions and therefore was suitable for use in cold climates in winter.

[0044]

From the results shown in Table 5, it was confirmed that diglycerin which is a polyhydric alcohol with IOB = 3 to 4 was not essential to obtain the effects of the present invention (Example 12), but elasticity of the foam discharged from the foamer was improved by compounding a polyhydric alcohol with IOB = 3 to 4 (Examples 13 and 14).

Claims

[Claim 1]

A cleanser composition dischargeable with a foamer container, comprising:

(a) lauryl betaine; and

(b) 4 to 15% by mass of higher fatty acid soaps formed from fatty acids having 5 to 25 carbon atoms, wherein the fatty acids having 5 to 25 carbon atoms comprise:

(b-1) 30 to 80% by mass of lauric acid, based on the total mass of fatty acids constituting the higher fatty acid soaps;

(b-2) 5 to 30% by mass of myristic acid, based on the total mass of fatty acids constituting the higher fatty acid soaps; and

(b-3) 5 to 35% by mass of at least one fatty acid selected from palmitic acid and stearic acid, based on the total mass of fatty acids constituting the higher fatty acid soaps,

wherein the ratio of the content of (a) lauryl betaine and the content of (b) the higher fatty acid soaps, $[(a)/(b)]$, is in the range of 0.4 to 1.5.

[Claim 2]

The cleanser composition according to claim 1, wherein (b-3) comprises both palmitic acid and stearic acid.

[Claim 3]

The cleanser composition according to claim 2, wherein the ratio of the content of palmitic acid to the content of stearic acid, [palmitic acid/stearic acid], is in the range of 0.4 to 2.5.

[Claim 4]

The cleanser composition according to any one of claims 1 to 3, further comprising (c) a polyhydric alcohol.

[Claim 5]

The cleanser composition according to claim 4, wherein the polyhydric alcohol (c) comprises a polyhydric alcohol with IOB = 3 to 4.

[Claim 6]

The cleanser composition according to claim 5, wherein the polyhydric alcohol with IOB = 3 to 4 is diglycerin.