

DESCRIPTION

DETERGENT

FIELD OF THE INVENTION

[0001]

The present invention relates to a detergent.

BACKGROUND OF THE INVENTION

[0002]

Conventionally, anionic surfactants such as alkyl sulfates, sulfonates and higher fatty acid salts have been widely used as a main component for a skin detergent due to a feature of high foaming property. However, these anionic surfactants had a problem that refreshing feeling can be obtained whereas stiffness and dryness are felt after washing. As a method for decreasing stiffness after washing and imparting fatted moist feeling, a method for washing the skin including directly applying a detergent containing a polyol in a high content to the skin without foaming, and washing away the detergent is suggested (Patent Document 1). However, since it is general in skin detergents to foam an agent, apply the foamy agent to the face and wash the face while massaging, an original use method by which an agent is directly applied without foaming was not conducted, and thus a sufficient effect was not exerted in many cases.

[0003]

On the other hand, "foam type detergent materials" that

contain a foamer container and a detergent composition filled therein, which are used by ejecting into a foamy shape, are widely used since washing with massaging with fine foam is possible and thus friction against the skin is small, and it is easier than foaming an agent by hands. Since foam type detergents are also used by directly applying foam ejected from a foamer container to the skin, if a polyol is incorporated in a detergent material, it is expected that fatted moist feeling is obtained after washing.

However, when a polyol is incorporated in a detergent material in a high amount, the viscosity of the composition is increased, and the ejecting property of foam is deteriorated if the composition is used for a foamer container. Specifically, there was a problem that the foam had coarse texture and bad shape retentive property at a low temperature (Patent Document 2, Patent Document 3). Therefore, a polyol could not be incorporated in a high content in a detergent composition to be filled in a foamer container.

PRIOR ART DOCUMENT

PATENT DOCUMENT

[0004]

Patent Document 1: JP-A-2001-172168

Patent Document 2: JP-A-2004-137247

Patent Document 3: JP-A-2008-94903

SUMMARY OF THE INVENTION

Problem to be solved by the invention

[0005]

The object of the present invention is to provide a detergent that comprises a polyol in a large amount to realize fatted moist finish of washing after washing, while a detergent material has a low viscosity, whereby good foam having fine texture can be obtained even at a low temperature in the case when the detergent material is used after filling it in a foamer container.

Means for solving the problem

[0006]

The present inventors have found that a detergent by which the above-mentioned problems have been solved can be obtained by combining a specific anionic surfactant and using polyols and the like having different IOB values in combination.

[0007]

The present invention provides a detergent containing a foamer container, and a detergent material containing the following components (A) to (E), which is filled in the foamer container:

- (A) an anionic surfactant having a sulfate group,
- (B) a higher fatty acid salt, or an ether carboxylic acid type surfactant,
- (C) a polyol having an IOB value of 3.4 or more and less than 6,
- (D) a polyol, or an alcohol represented by the general formula (1), which has an IOB value of 0.1 or more and less than 3.4:
$$R^1-(OCH_2CH_2)_n-OH \quad (1)$$

wherein R^1 represents an alkyl group or alkenyl group having 1 to 5 carbon atoms, and n represents a number of from 2 to 200, and

(E) water,

wherein the weight ratio of the components (A) to (D) is:
 $\{(A)+(B)\}$ = from 1 to 10% by weight,
(C) = from 30 to 60% by weight, and
 $(D)/(C)$ = from 0.01 to 1.

Effect of the invention

[0008]

The detergent of the present invention contains a polyol in a large amount to realize fattedmoist finish of washing after washing, while the detergent material has a low viscosity, whereby good foam having fine texture can be obtained even at a low temperature in the case when the detergent material is used after filling it in the foamer container, and the detergent is also excellent in detergency and stability.

Furthermore, since the detergent of the present invention can be used by directly applying the foam ejected from the foamer container to the skin, the property of the formulation of the detergent material containing a polyol in a high concentration can be utilized.

Mode for carrying out the invention

[0009]

The anionic surfactant of the component (A) used in the present invention has a sulfate group.

Examples of such anionic surfactant may include alkyl sulfate esters, polyoxyalkylene alkyl ether sulfate esters or salts thereof, and the like. Those having a straight chain or branched chain alkyl group having 6 to 22 carbon atoms are preferable. Among these, polyoxyalkylene alkyl ether sulfate esters are preferable in view of low stimulus property, and polyoxyethylene (average addition mole number: from 0.5 to 8) alkyl ether sulfate salts are more preferable.

Furthermore, examples of the salt of the component (A) may include alkali metals such as sodium and potassium; ammonium; alkanolamines such as aminomethylpropanol; and basic amino acids such as lysine and alginine.

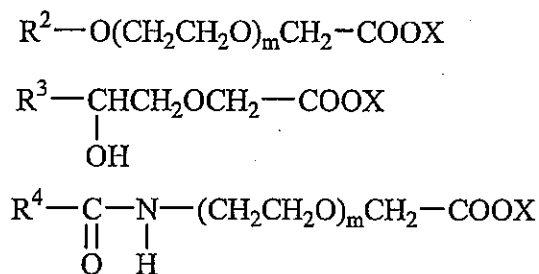
[0010]

The component (B) used in the present invention is a higher fatty acid salt, or an ether carboxylic acid type surfactant.

The higher fatty acid is preferably one having a straight chain or branched chain alkyl group having 6 to 22 carbon atoms.

Furthermore, the ether carboxylic acid type surfactant is a group of compounds each having a hydrophobic group and a carboxyl group via a polyoxyethylene chain or a glycol ether unit, and examples thereof may include alkyl ether acetic acids or salts thereof, alkyl hydroxy ether acetates or salts thereof, and alkylamide ether acetate or salts thereof. Preferable ones are represented by the general following formulas, respectively.

[0011]



[0012]

wherein R^2 , R^3 and R^4 each represents an alkyl group or alkenyl group having 10 to 18 carbon atoms, m represents a number of 0.5 to 10 in average, and X represents a hydrogen atom, an alkali metal, ammonium, an alkanolamine or a basic amino acid.

[0013]

Furthermore, examples of the salt of the component (B) may include those similar to the salts of the component (A), and include alkali metals such as sodium and potassium; ammonium; alkanolamines such as aminomethylpropanol; and basic amino acids such as lysine and alginine.

As the component (B), higher fatty acid salts are preferable, and higher fatty acid salts having 10 to 18 carbons are more preferable, in view of high foaming property and fine retention of foam during washing.

[0014]

In the present invention, by using (A) the anionic surfactant having a sulfate group and (B) the higher fatty acid salt or ether carboxylic acid type surfactant in combination, foam having fine texture can be ejected from a foamer container.

In the present invention, the content of each of the components (A) and (B) in the detergent material is preferably

from 0.5 to 10% by weight, more preferably from 1 to 4% by weight, even more preferably from 1.5 to 3% by weight.

[0015]

Furthermore, the content of the components (A) and (B) in total in the detergent material is from 1 to 10% by weight, preferably from 2 to 8% by weight, more preferably from 3 to 5% by weight in total. The detergency and retention performance of the foam are fine when the total content of the components (A) and (B) is 1% by weight or more, and the ejecting property of the foam from the foamer container at a low temperature and stability during storage at a low temperature are excellent at 10% by weight or less.

Furthermore, the weight ratio of the components (A) and (B) is preferably (A)/(B) of 0.1 or more since stability during storage at a low temperature is fine, and is preferably of 9 or less since fatted moist feeling after washing can be obtained. Furthermore, in view of balancing of refreshing feeling and moist feeling, (A)/(B) is preferably from 0.1 to 4, more preferably from 0.15 to 3, even more preferably from 0.2 to 2.

[0016]

The polyol of the component (C) used in the present invention has an IOB value of 3.4 or more and less than 6, preferably of from 3.4 to 5. By using such polyols, fatted moist feeling in finish of washing can be realized.

The term "IOB" (Inorganic Organic Balance) as used herein represents a ratio of an inorganic value to an organic value as determined in accordance with an organic conceptional

diagram (Atsushi Fujita, "Prediction of Organic Compounds and Organic Conceptional Diagram", Kagaku no Ryoiki, Vol. 11, No. 10 (1957), pp. 719-725), and can be obtained from the following formula.

[0017]

$$\text{IOB value} = \frac{\text{Inorganic value}}{\text{Organic value}}$$

[0018]

Specific examples of the component (C) may include glycerin (IOB=5.0); sugar alcohols such as sorbitol (IOB=5.0), sucrose (IOB=4.4), maltitol (IOB=4.4), mannitol (IOB=5.0) and xylitol (IOB=5.0); polyoxyethylene glycoside derivatives such as polyoxyethylene (20) methylglycoside (IOB=3.4). Among these, glycerin, sorbitol and polyoxyethylene glycoside derivatives are preferable in that skin feeling after use is fine. Specifically, when glycerin or sorbitol is used, skin feeling after use is not tacky, and fatted moist feeling can be felt.

[0019]

In the present invention, the content of the component (C) in the detergent is from 30 to 60% by weight. Moist feeling of finish of washing is fine at 30% by weight or more, and the ejecting property of the foam from a foamer container at a low temperature is excellent at 60% by weight or less. Furthermore,

the content is preferably from 35 to 50% by weight, more preferably from 38 to 48% by weight, in view of balancing of ejecting property of the foam and moist feeling after washing.

[0020]

The polyol and the alcohol represented by the above-mentioned general formula (1) for the component (D) used in the present invention are those having an IOB value of 0.1 or more and less than 3.4.

Such polyols or alcohols (1) can decrease the liquid viscosity of the detergent material and further the liquid viscosity at a low temperature by combining with the polyol of the component (C), and foam of good quality having fine texture can be obtained from the foamer container.

Among polyols, the polyol of the component (C) can provide higher moisturizing effect; however, when it is incorporated in the detergent material, the viscosity is increased and the foam that has been ejected at a low temperature has coarse texture. Therefore, it is difficult to incorporate the polyol solely in a large amount in the detergent material. In the present invention, the viscosity of the detergent material can be decreased, and the polyol of the component (C) can be incorporated in a large amount, by combining the component (C) and the component (D).

[0021]

Specific examples of the component (D) may include straight chain or branched chain type glycols, monoalkyl mono, di, or tri-alkylglycol ethers, polyethylene glycols,

polypropylene glycols, polyoxyethylene glycols, and the like. Among these, glycols having 2 to 10 carbon atoms such as 1,3-butylene glycol (IOB=2.5), isoprene glycol (IOB=2.0), propylene glycol (IOB=3.3) and dipropylene glycol (IOB=1.8); diethylene glycol monoethyl ether (IOB=1.6), polypropylene glycols having a molecular weight of from 100 to 10,000, polyethylene glycols having a molecular weight of from 100 to 10,000, and polyoxyethylene diglyceryl ethers having an average addition mole number of oxyethylenes of from 4 to 20 are preferable, and isoprene glycol, 1,3-butylene glycol and diethylene glycol monoethyl ether are more preferable.

[0022]

In the present invention, the content of the component (D) in the detergent material is preferably from 0.5 to 30% by weight, more preferably from 1 to 15% by weight, even more preferably from 2 to 10% by weight in total.

Furthermore, the content of the component (D) is determined by the weight ratio with the component (C), and $(D)/(C) =$ from 0.01 to 1. Within this range, the effect of decreasing the viscosity of the detergent material by the combination of the polyols (C) and (D) is high, and the foam obtained from the foamer container has fine texture and good visibility. Furthermore, the weight ratio $(D)/(C)$ is preferably from 0.05 to 0.8, more preferably from 0.1 to 0.5 in that the effect of decreasing the viscosity of the detergent material is high.

[0023]

Furthermore, among the component (D), it is preferable to use (D1) a polyol having an IOB value of 0.1 or more and less than 1.8 and (D2) a polyol having an IOB value of 1.8 or more and less than 3.4 in combination since the effect of decreasing the liquid viscosity of the detergent material is increased more, and generation of a precipitation and turbidness of the solution at a low temperature can be suppressed as compared to the case when only the component (D1) is included.

Specific examples of (D1) may include diethylene glycol monoethyl ether, polypropylene glycols having a molecular weight of 400 or more, and the like, and diethylene glycol monoethyl ether (IOB=1.6) and polypropylene glycol-9 (IOB=0.67) are more preferable.

Furthermore, specific examples of (D2) may include 1,3-butylene glycol, isoprene glycol, propylene glycol, dipropylene glycol, polypropylene glycols having a molecular weight of less than 400, polyethylene glycols having a molecular weight of from 100 to 10,000, and the like, and isoprene glycol (IOB=2.0) and 1,3-butylene glycol (IOB=2.5) are more preferable.

[0024]

For the weight ratio of the components (D1) and (D2), when (D1)/(D2) is 9 or less, generation of a precipitation and turbidness of the solution during storage at a low temperature become hard to occur, and when the weight ratio is 0.1 or more, the effect of decreasing the liquid viscosity of the detergent material becomes sufficient. Furthermore, (D1)/(D2) is

preferably from 0.2 to 5, more preferably from 0.4 to 1.

[0025]

The detergent material used in the present invention can further contain (F) an amphoteric surfactant, whereby the retention performance of the foam during washing can be improved and feeling of massaging can be improved.

As the specific examples of such amphoteric surfactants, amphoteric surfactants having a hydrocarbon group having 7 to 23 carbon atoms such as carbobetaine-based, sulfobetaine-based, imidazoliumbetaine-based, amidobetaine-based, phosphobetaine-based and amine oxide-based amphoteric surfactants are preferable. Among these, carbobetaine-based, sulfobetaine-based, amidobetaine-based and amineoxide-based are preferable, and lauramide propyl betaine and lauryl hydroxy sulfobetaine are more preferable.

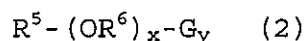
[0026]

The component (F) is included in the detergent material in the content of preferably from 1 to 20% by weight, more preferably from 3 to 15% by weight, even more preferably from 7 to 13% by weight. When the content of the component (F) is 20% by weight or less, the viscosity of the detergent material is low, and the texture of the foam ejected from the foamer container is fine and good, and when the content of the component (F) is 1% by weight or more, the effect of improving the retaining property of the foam is significant and feeling of massaging with the foam during washing is improved.

[0027]

The detergent material used in the present invention may further contain (G) a nonionic surfactant having a glucose backbone, whereby detergency can be improved. As a specific example of the component (G), an alkyl glycoside represented by the following formula (2) is exemplified.

[0028]



In the formula, R^5 represents a straight chain or branched chain alkyl group, alkenyl group or alkylphenyl group having 8 to 18 carbon atoms, R^6 represents an alkylene group having 2 to 4 carbon atoms, G is a residue of a glucose backbone, x represents numbers whose average value becomes from 0 to 5, and y represents numbers whose average value becomes from 1 to 10.

[0029]

It is preferable that R^5 has 10 to 14 carbon atoms in view of solubility, foaming property and detergency. Furthermore, although R^6 is an alkylene group having 2 to 4 carbon atoms, an alkylene group having 2 to 3 carbon atoms is preferable in view of solubility in water and the like.

The component (G) is included in the detergent material in the content of preferably from 0.5 to 5% by weight, more preferably from 0.8 to 4% by weight, even more preferably from 1 to 3% by weight since detergency is improved significantly.

[0030]

The detergent material used in the present invention may further contain (H) a nonionic surfactant having a branched alkyl group, whereby generation of a precipitation and

turbidness of the solution during storage at a low temperature can be suppressed.

Specific examples may include mono, di, tri-fatty acid polyoxyalkylene glyceryl esters, polyoxyethylene castor oils (including hydrogenated castor oils), mono, di, tri-fatty acid polyoxyethylene castor oil esters (including hydrogenated castor oils) and the like. As the fatty acid in these, those having a branched alkyl group having 6 to 22 carbon atoms are preferable. Examples of the polyoxyalkylene may include polyoxyethylene and polyoxypropylene, and polyoxyethylene is preferable.

Fatty acid polyoxyethylene hydrogenated castor oil esters and fatty acid polyoxyethylene glyceryl esters are preferable, and polyoxyethylene hydrogenated castor oil isostearates and polyoxyethylene glyceryl isostearates, each of which has the total of repeating units of polyoxyethylenes being averagely from 3 to 30, are more preferable.

The component (H) is included in the detergent material in the content of preferably from 0.1 to 3% by weight, more preferably from 0.1 to 2% by weight, even more preferably from 0.3 to 1% by weight since the stability of the detergent material at a low temperature can be improved.

[0031]

In the present invention, (E) water is included in the detergent material in the content of preferably from 30 to 60% by weight, more preferably from 40 to 50% by weight. Within this range, the texture of the foam ejected from the foamer

container at a low temperature is fine, and fatted moist feeling of finish of washing can be obtained.

[0032]

Where necessary, besides the above-mentioned components, components that are used for general detergent compositions may further be incorporated in the detergent material used in the present invention, to the extent that the effect of the present invention is not deteriorated, and examples thereof include oily components such as lanolin and derivatives thereof, esters such as isopropyl myristate, and triglycerides such as palm oil; moisturizing agents such as polyglycerine fatty acid esters; bactericidal agents such as triclosan and trichlorocarbanilide; anti-inflammatory agents such as dipotassium glycyrrhizinate and tocopherol acetate; anti-dandruff agents such as zinc pyrithione and Octopirox; antiseptic agents such as methyl paraben and butyl paraben; chelating agents such as ethylenediamine tetraacetate or salts thereof and hydroxyethane diphosphonate or salts thereof; pH adjusting agents such as citric acid and succinic acid; salts such as sodium chloride; as well as pearling agents, fragrances, pigments, ultraviolet absorbers, antioxidants and the like.

[0033]

The detergent material used in the present invention may be produced by mixing all of the components by a general method. The viscosity at 5°C is preferably 60 mPa·s or less, more preferably from 5 to 50 mPa·s, and even more preferably from 5 to 30 mPa·s, since the foam ejected from the foamer container

is fine and has good shape retaining property.

In the present invention, the viscosity is measured by using a type B (Brookfield) viscometer at 5°C at a predetermined number of rotations (60 rpm for 100 mPa·s or less, and 30 rpm for 100 mPa·s or more) for a measurement time of 1 minute.

[0034]

The detergent material obtained as above is filled in the foamer container. The foamer container has a porous film, and examples of the porous film may include sponges, sintered bodies, nets, and the like. Among these porous films, nets having a small wall thickness are preferable, since when a detergent liquid remaining on the film by adhesion is dried and solidified to cause clogging, the solidified product can be dissolved immediately by the flow of the foam in the next ejection to solve the clogging. As the net, those having from 50 to 500 meshes are preferable, and those having from 200 to 400 meshes are specifically preferable since good foam is generated. Furthermore, examples of preferable materials for such meshes may include nylons, polyesters and the like.

It is preferable that the container preferably has a plurality of such films, specifically two films in view of economic efficiency and stability of foam.

[0035]

Furthermore, any foamer container may be used as long as it mixes a predetermined amount of a detergent liquid with a predetermined amount of air and eject the mixture as a foamy state, and examples thereof may include squeeze foamers that

are used by pushing a trunk part of a soft container by hands and fingers such as those described in Japanese Utility Model Application Laid-Open (JP-U) No. 58-174272, JP-U No. 62-42787, Japanese Patent Application Publication No.52-16567 and the like; and pump foamers that are used by pushing a head of a cap equipped with a pump mechanism such as those described in JP-U No. 3-7963, JP-U No. 62-103458, JP-A No.7-315463 and the like.

[0036]

The detergent of the present invention may be formed into a facial foam, a cleansing foam, a makeup remover foam, a shaving foam, a shampoo foam, a body washing foam and the like. Specifically, it is useful as a cleansing foam or a makeup remover foam.

[0037]

The detergent of the present invention is used by pouring foam ejected from the foamer container into hands, applying the foam directly to the skin without diluting with water, applying the foam well, massaging, and washing away the foam with water.

EXAMPLES

[0038]

Examples 1 to 28, and Comparative Examples 1 to 9

Liquid detergent material compositions having the compositions shown in Table 1 to Table 3 were prepared, and filled into foamer containers (160 mL [YF-9413, manufactured by Yoshino Kogyo Co., Ltd.]) to produce detergents. The obtained detergents were evaluated for the liquid viscosity,

the ejecting property at a low temperature, the state of the solution at a low temperature, the skin feeling after washing, the retention of foam during washing, and the detergency according to the following methods. The results are shown in combination in Table 1 to Table 3.

[0039]

(Evaluation method)

(1) Liquid viscosity:

The liquid viscosity was measured at 5°C by using a type B (Brookfield) viscometer (a TVB-10 type viscometer, manufactured by Toki Kogyo Co., Ltd.) and using a rotor BM No. 1 at a predetermined number of rotations (60 rpm for 100 mPa·s or less, 30 rpm for 100 mPa·s or more) for a measurement time of 1 minute.

[0040]

(2) Ejecting property at a low temperature:

The state of the foam ejected from the foamer container at 5°C was evaluated by ten specialized evaluators by visual observation according to the following (I) five-graded evaluation criteria, and the ejecting property of the foam at a low temperature was judged according to (II) four-graded judging criteria based on the average value of the scores.

[0041]

(I) Five-graded evaluation criteria;

Score 4; Foam has fine texture and is wholly uniform.

Score 3; Foam has fine texture, but coarse air bubbles are incorporated slightly.

Score 2; Foam has fine texture, but coarse air bubbles are incorporated to a certain degree.

Score 1; Foam has fine texture, but much coarse air bubbles are incorporated.

Score 0; Foam has coarse texture.

(II) Four-graded judging criteria;

A; the score is 3.0 or more on average.

B; the score is 2.0 or more and less than 3.0 on average.

C; the score is 1.0 or more and less than 2.0 on average.

D; the score is less than 1.0 on average.

[0042]

(3) State of solution at a low temperature:

Each of the detergent materials was stored at -5°C for 1 week, and the state of solution was evaluated by visual observation and judged in accordance with the following four-graded judging criteria.

A; suspension and precipitation are not generated.

B; the solution is suspended slightly, but precipitation is not generated.

C; the solution is suspended, but precipitation is not generated.

D; precipitation is generated.

[0043]

(4) Skin feeling after washing:

The detergents were actually used by ten specialized evaluators, and sensory evaluation for the skin feeling after washing was carried out according to the following (I)

five-graded evaluation criteria, and the skin feeling was judged according to (II) four-graded judging criteria based on the average value of the scores.

[0044]

(I) Five-graded evaluation criteria;

Score 4; moist feeling is felt.

Score 3; moist feeling is felt slightly.

Score 2; moist feeling is felt very slightly.

Score 1; moist feeling is felt little.

Score 0; no moist feeling is felt.

(II) Four-graded judging criteria;

A; the score is 3.0 or more on average.

B; the score is 2.0 or more and less than 3.0 on average.

C; the score is 1.0 or more and less than 2.0 on average.

D; the score is less than 1.0 on average.

[0045]

(5) Retention of foam during washing:

The respective detergents were actually used by ten specialized evaluators and judged by the number of the evaluators who answered that the feeling of the foam during massaging was fine, according to the following evaluation criteria.

A; 8 or more evaluators.

B; 6 or 7 evaluators.

C; 3 to 5 evaluators.

D; 2 or less evaluators.

[0046]

(6) Detergency (removal of makeup):

An oil-based solid lipstick was applied to the front arm by a ratio of 10 mg/5 cm², the arm was washed for 30 seconds with 1 g of the foam ejected from the foamer container, and the amount of the residual lipstick was judged by visual observation according to the following evaluation criteria.

A; the lipstick is removed almost completely.

B; most of the lipstick is removed.

C; the lipstick is removed slightly.

D; the lipstick is not removed at all.

[0047]

[Table 1]

[illegible]

	Potassium hydroxide	0.71	0.79	0.26	0.18	0.71	0.71	0.71	0.51	0.71	0.71	0.71	0.71	0.71
E	Water	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance
	Total	100	100	100	100	100	100	100	100	100	100	100	100	100
	(A)+(B)=1-10%	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.5	3.5	3.5	3.5	3.5	3.5
	(A)/(B)	0.26	0.13	2.50	4.06	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
	(C)=30-60%	40.0	40.0	40.0	40.0	37.5	40.0	49.0	55.0	32.0	40.0	40.0	40.0	40.0
	(D)/(C)=0.01-1	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.08	0.66	0.25	0.16	0.15	0.25
	(D1)/(D2)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.24	4.45	-
	Viscosity (mPa·s)5°C	15	15	16	14	15	15	42	34	55	44	28	13	12
	Ejecting property at low temperature	A	A	A	A	A	A	B	B	C	B	A	A	A
	State of solution at low temperature	A	A	B	C	A	A	A	A	C	B	B	B	C
	Skin feeling after washing	A	C	A	A	B	A	A	A	B	A	A	A	A
	Retention of foam during washing	B	B	B	B	A	A	A	B	A	B	A	A	B
	Detergency (removal of makeup)	B	B	B	B	B	B	B	B	B	B	B	B	B

[0048]

[Table 2]

[illegible]

H	Polyoxyethylene (20) hydrogenated castor oil isostearate			0.30									
	Polyoxyethylene (5) glyceryl isostearate						1.00						
	Potassium hydroxide	0.71	0.71	0.26	0.59	0.22	0.22	0.30	0.51	1.12	1.93	0.71	0.71
E	Water	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance
	Total	100	100	100	100	100	100	100	100	100	100	100	100
	(A)+(B)=1-10%	3.5	3.5	3.5	3.5	3.5	3.5	1.5	2.5	5.5	9.5	3.5	3.5
	(A)/(B)	0.26	0.26	2.50	0.26	2.99	2.99	0.26	0.26	0.26	0.26	0.26	0.26
	(C)=30-60%	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	32.0	30.0
	(D)/(C)=0.01-1	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.11	0.15	0.31	0.50
	(D1)/(D2)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.20	0.50
	Viscosity (mPa·s)5°C	29	17	19	13	20	28	12	12	33	49	11	14
	Ejecting property at low temperature	A	A	A	A	A	A	A	A	B	C	A	A
	State of solution at low temperature	A	A	A	A	B	A	A	A	C	C	A	A
	Skin feeling after washing	A	A	A	A	A	A	A	A	A	A	C	C
	Retention of foam during washing	B	A	B	C	B	B	C	C	B	B	B	B
	Detergency (removal of makeup)	B	A	B	B	B	B	C	B	B	B	B	B

[0049]

[Table 3]

Components (% by weight)		Examples			Comparative Examples								
		26	27	28	1	2	3	4	5	6	7	8	9
A	Sodium polyoxyethylene (2) lauryl ether sulfate	0.72	0.72	0.72	0.40	2.16		3.50	0.72	0.72	0.72	0.72	0.72
B	Lauric acid	1.07	1.07	1.07	0.15	3.21	1.35		1.07	1.07	1.07	1.07	1.07
	Myristic acid	0.91	0.91	0.91	0.13	2.73	1.15		0.91	0.91	0.91	0.91	0.91
	Palmitic acid	0.80	0.80	0.80	0.12	2.40	1.00		0.80	0.80	0.80	0.80	0.80
	Polyoxyethylene (5) lauryl ether acetate												
C	Concentrated glycerin	40.00	40.00	40.00	40.00	50.00	40.00	40.00	20.00	70.00	40.00	33.00	55.00
	Sorbitol												
	Polyoxyethylene (20) methylglycoside												
D	Diethylene glycol monoethyl ether	1.33		2.00	2.00	2.00	2.00	2.00	1.00	2.00		15.00	
	1		6.66										
	Polypropylene glycol-9												
	Isoprene glycol	1.33	6.66	2.00	2.00	2.00	2.00	2.00	1.00	2.00		15.00	
	2	1.33	6.66	2.00	2.00	2.00	2.00	2.00	1.00	2.00		15.00	
	Propylene glycol												
F	Dipropylene glycol												
	Lauryl hydroxy sulfobetaine (Amphitol 20HD, Kao Corporation)			2.85		5.00			2.85	2.85	2.85		
G	Alkyl (C6-12) polyglucoside			1.55							1.55		1.55

H	Polyoxyethylene (20) hydrogenated castor oil isostearate			0.30							0.30		0.30
	Polyoxyethylene (5) glyceryl isostearate												
	Potassium hydroxide	0.71	0.71	0.71	0.10	2.13	0.89	0.00	0.71	0.71	0.71	0.71	0.71
E	Water	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance
	Total	100	100	100	100	100	100	100	100	100	100	100	100
	(A)+(B)=1-10%	3.5	3.5	3.5	0.8	10.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
	(A)/(B)	0.26	0.26	0.26	1.00	0.26	0.00	—	0.26	0.26	0.26	0.26	0.26
	(C)=30-60%	40.0	40.0	40.0	40.0	50.0	40.0	40.0	20.0	70.0	40.0	33.0	55.0
	(D)/(C)=0.01-1	0.10	0.50	0.15	0.15	0.12	0.15	0.15	0.15	0.09	0.00	1.36	0.00
	(D1)/(D2)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	—	0.50	—
	Viscosity (mPa·s)5°C	20	24	25	12	77	15	15	8	177	99	94	66
	Ejecting property at low temperature	A	A	A	A	D	A	A	A	D	D	D	D
	State of solution at low temperature	A	A	A	B	C	A	D	B	B	A	A	A
	Skin feeling after washing	A	A	A	A	A	D	A	D	A	A	A	A
	Retention of foam during washing	B	B	B	D	A	B	B	A	A	A	B	B
	Detergency (removal of makeup)	B	B	B	C	B	B	B	B	B	A	B	B

CLAIMS

1. A detergent comprising a foamer container, and a detergent material comprising the following components (A) to (E), which is filled in the foamer container:

- (A) an anionic surfactant having a sulfate group,
- (B) a higher fatty acid salt, or an ether carboxylic acid type surfactant,
- (C) a polyol having an IOB value of 3.4 or more and less than 6,
- (D) a polyol, or an alcohol represented by the general formula (1), which has an IOB value of 0.1 or more and less than 3.4:
$$R^1-(OCH_2CH_2)_n-OH \quad (1)$$

wherein R^1 represents an alkyl group or alkenyl group having 1 to 5 carbon atoms, and n represents a number of from 2 to 200, and

(E) water,

wherein the weight ratio of the components (A) to (D) is:
{ (A)+(B) } = from 1 to 10% by weight,
(C) = from 30 to 60% by weight, and
(D)/(C) = from 0.01 to 1.

2. The detergent according to claim 1, wherein the component (C) is glycerin or sorbitol and has a content of from 30 to 60% by weight.

3. The detergent according to claim 1 or 2, wherein the component (D) comprises:

(D1) a polyol having an IOB value of 0.1 or more and less than 1.8, and

(D2) a polyol having an IOB value of 1.8 or more and less than 3.4.

4. The detergent according to claim 3, wherein the components $(D1)/(D2)$ = from 0.2 to 5.

5. The detergent according to any one of claims 1 to 4, wherein the detergent material has a viscosity of 60 mPa·s or less at 5°C.

6. The detergent according to any one of claims 1 to 5, which further comprises (F) an amphoteric surfactant.

7. The detergent according to any one of claims 1 to 6, which further comprises (G) a nonionic surfactant having a glucose backbone.

8. The detergent according to any one of claims 1 to 7, which further comprises (H) a nonionic surfactant having a branched alkyl group.