

Description

The present invention relates to a fabric softener composition and more particularly to a liquid fabric softener composition which imparts an improved softness and resiliency (fluffy feeling) to clothes of various fibers.

The large majority of home laundering agents available on the market today under the name of softeners are compositions based on quaternary ammonium salts containing two long-chain alkyl groups within the molecule, such as di-hydrogenated tallow-alkyl dimethylammonium chloride, for instance. This is because quaternary ammonium salts produce satisfactory softening effects on various fibers even when used in small quantities.

However, despite their remarkable softening effects on cotton and the like, the above-mentioned quaternary ammonium salts are less effective for synthetic fibers such as acrylic, polyester and polyamide fibers. Moreover, if they are used in high concentrations, the resiliency and the feel of clothes are adversely affected.

Furthermore, the above quaternary ammonium salts are so hydrophobic that when put in rinse water, they are not well dispersed at low to moderate pulsator speeds and tend to be deposited unevenly on the clothes. In addition, particularly when they are stored at low temperature for a prolonged time, these compositions tend to gain in viscosity and form gels or undergo phase separation. The commercial softeners contain, in addition to the quaternary ammonium salts, such additives as polyoxyethylene nonionic surfactants, electrolytes, solvents, and the like for improving the dispersibility and shelf life but the effects are not as satisfactory as desired.

Liquid softeners containing various amines as softener bases are also known. By way of illustration, a textile softening composition containing a long-chain alkylamine such as methyl di-hydrogenated tallow-alkylamines is described in JP-A-52-59796 (corresponding to GB-A-1514276); a textile finishing composition containing an acylated alkanolamine, a water-soluble quaternary ammonium salt and a fatty acid ester for imparting smoothness and the pleasing feel is disclosed in JP-A-58-60070 (corresponding to US-A-4,446,034); a highly-dispersible softener containing a quaternary ammonium compound, a higher fatty acid-hydroxy(lower)alkylpolyamine condensate, and an alkylamine polyglycol ether is disclosed in JP-A-61-167083 (corresponding to US-A-4,776,965); a stable aqueous dispersion for textile treatment which contains a di(higher alkyl)cyclic amine and a Brønsted acid is disclosed in JP-A-61-275474 (corresponding to US-A-4,724,089); a softening composition containing a di-long chain alkylamine-anionic surfactant ion pair complex, a non-silicone wax and a liquid vehicle is disclosed in JP-A-64-85368 (corresponding to US-A-4,913,828); a textile conditioning composition containing an amine such as a hydroxy(lower)-alkylalkylenediamine-higher fatty acid condensate and an amphoteric textile conditioner is disclosed in JP-A-2-6662 (corresponding to EP-A-332270); a textile conditioning composition containing a di(long chain) alkylamine-polycarboxylic acid complex for imparting flexibility and antistaticity to fabrics is disclosed in JP-A-2-14076 (corresponding to US-A-4,869,836).

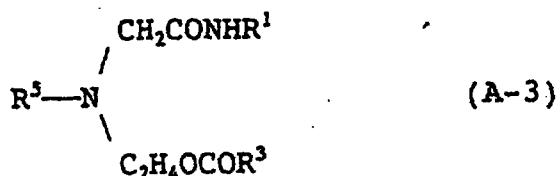
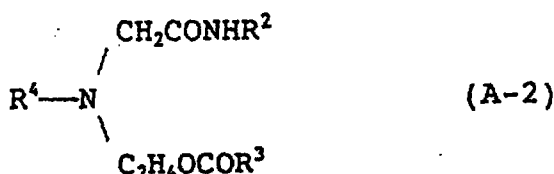
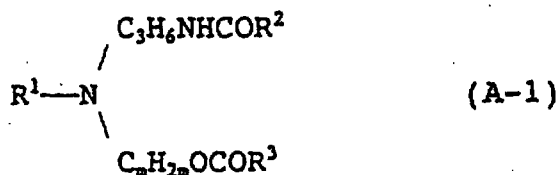
Furthermore, JP-A-52-5394 (corresponding to US-A-4,045,361) discloses a fabric conditioner comprising a mono- or di(long chain)alkyl-alkylenediamine antistatic agent and a quaternary ammonium softening agent.

However, these amine-containing softeners are not sufficient in the ability to soften the substrate fabrics, although they are superior to those softening compositions based on quaternary ammonium salts in dispersibility and shelf life.

The present inventors have conducted extensive studies of amine-containing softener compositions. As a result, they found that a neutralization or quaternization product of a specific di-long chain amine compound is superior in the softening effect and it imparts sufficient resiliency (fluffy feeling) to clothes. The present invention is completed on the above findings.

Accordingly, the present invention provides an aqueous fabric softener composition comprising water and, as a softener raw material, a neutralization product of:

(A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):



wherein, R¹ represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;

R², R³ each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;

R⁴ represents an alkyl group containing from 1 to 4 carbon atoms;

R⁵ represents an alkyl or alkenyl group containing from 12 to 22 carbon atoms; and

m is 2 or 3,

with

(B) an inorganic acid or an organic acid containing from 1 to 6 carbon atoms,

a quaternization product of Compound (A) or a mixture of the neutralization product of Compound (A) with Compound (B) and the quaternization product of Compound (A).

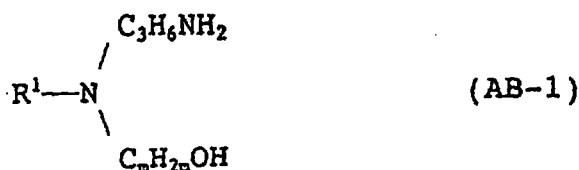
The Compound (A) is a precursor of the softener raw material to be contained in the fabric softener composition of the invention.

Specific and preferred examples of the group represented by R¹ include, for example, methyl group and hydroxyethyl group. As the alkyl or alkenyl group represented by R², those containing from 13 to 20 carbon atoms are preferred and those containing from 15 to 18 carbon atoms are more preferred. As the alkyl or alkenyl group represented by R³, those containing from 13 to 19 carbon atoms are preferred and those containing from 15 to 17 carbon atoms are more preferred. Specific and preferred example of the group represented by R⁴ include, for example, methyl group. As the alkyl or alkenyl group represented by R⁵, those containing from 14 to 20 carbon atoms are preferred and those containing from 16 to 18 carbon atoms are more preferred. The symbol m is preferably 2. The alkyl or alkenyl group represented by R² or R³ may be straight-chain or branched, though straight-chain ones are preferred.

The compounds of formulas (A-1) through (A-3) can be used either alone or a mixture of two or more of them.

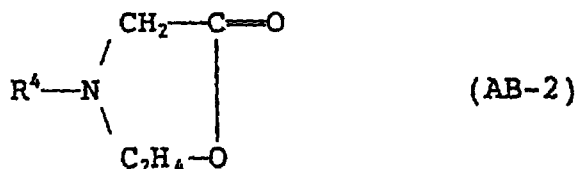
The compound (A-1) can be synthesized by reacting:

a compound of formula (AB-1):



wherein R^1 and m are as defined hereinbefore,
 which can be obtained by cyanoethylation and hydrogenation of an N-lower alkylalkanolamine or a dialkanolamine such as diethanolamine with
 a fatty acid containing 12 to 22 carbon atoms.

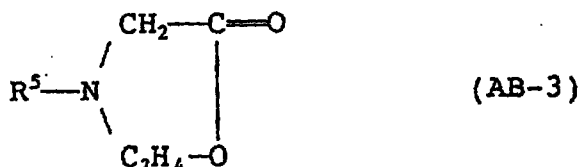
The compound (A-2) can be synthesized by subjecting a compound of formula (AB-2):



wherein R^4 is as defined hereinbefore, which can be obtained by intramolecular dehydrative ring-formation reaction of an N-lower alkylidethanolamine, to ring-opening amidation with an aliphatic amine such as laurylamine or stearylamine, and reacting the resulting amide with a fatty acid halide containing from 12 to 22 carbon atoms such as stearoyl chloride.

The compound (A-3) can be synthesized by reacting:

a compound of formula (AB-3):



wherein R^5 is as defined hereinbefore,

which can be obtained by intramolecular dehydrative ring-formation reaction of an N-higher alkyl or alkenyldiethanolamine with

a lower alkylamine such as methylamine, ethylamine or butylamine, and further with

a fatty acid halide containing from 12 to 22 carbon atoms such as stearoyl chloride.

The fatty acid to be used in the synthesis of the compounds of formulas (A-1) through (A-3) are those containing from 12 to 22 carbon atoms, preferably from 14 to 20 carbon atoms, and more preferably from 16 to 18 carbon atoms. Specific examples thereof include, for example, palmitic acid, stearic acid, oleic acid and elaidic acid.

The acid (B) to be used to give the neutralization product of Compound (A) which is used as the softener raw material of the fabric softener composition of the invention includes inorganic acids such as hydrochloric acid, nitric acid, phosphoric acid, sulfuric acid and so on; and organic acids containing from 1 to 6 carbon atoms, such as acetic acid, lactic acid, glycolic acid, citric acid, maleic acid and so on, although hydrochloric acid is preferred in that it is most inexpensive and effective.

Regarding the neutralization process of Compound (A), it is optional to neutralize Compound (A) beforehand and disperse it in water, or to pour Compound (A), whether in liquid form or in solid form, into an aqueous solution of the acid. Of course, Compound (A) and the acid may be simultaneously added to water. The quaternization of Compound (A) can be accomplished by the known method, for example, using methyl chloride or a dialkyl sulfate such as dimethyl sulfate or diethyl sulfate.

For the preparation of a fabric softener composition containing the neutralization or quaternization product of Compound (A) according to the invention as an essential ingredient, it is preferable that the total amount of the neutralization product of Compound (A) and the quaternization product of Compound (A) in the fabric softener composition of the invention ranges from 4 to 40 % by weight, preferably 6 to 30 % by weight, and more preferably from 10 to 30 % by weight, based on the total weight of the composition, in view of the viscosity of the final product and ease of handling. The balance of the composition can be water.

In the fabric softener composition of the invention, a silicone compound such as dimethylpolysiloxane or a partially amino- or polyoxyalkylene-modified dimethylpolysiloxane, particularly a partially polyoxyalkylene-

modified dimethylpolysiloxane can be added in addition to the neutralization product of Compound (A) and/or the quaternization product of Compound (A) and water. In this case, the feel of the clothes finished by such a fabric softener composition can be improved without detracting the water-absorbing property of the clothes. Such a silicone compound is preferably used in the fabric softener composition of the invention in a proportion of from 0.3 to 5 % by weight based on the total weight of the neutralization product of Compound (A) and the quaternization product of Compound (A) according to the invention.

The fabric softener composition of the invention imparts to clothes of various fibers a softness with bounciness while giving the softening effect equivalent to that of di-hydrogenated tallow-alkyl dimethylammonium chloride, which has been widely used in the art.

In an aqueous liquid fabric softener composition of the invention, it is preferable to control the viscosity of the final product by adding an inorganic electrolyte, such as sodium chloride, calcium chloride, magnesium chloride or the like, in a proportion of from 0.05 to 0.4 % by weight based on the total weight of the composition.

Although the fabric softener composition of the invention has a long shelf life, it can be further stabilized for assurance of the quality of the composition under severe storage conditions by incorporating additives including nonionic surfactants such as polyoxyethylene (5-50 moles)-alkyl or alkenyl(C₁₂₋₂₄) ethers, polyoxyethylene (5-50 moles)-alkyl or alkenylamines; solvents such as ethanol, isopropyl alcohol, propylene glycol and ethylene glycol; and/or urea.

Moreover, esters, nonionic or cationic compounds, long-chain alcohols, and the like, which are known as a softener raw material, may be incorporated in the fabric softener composition of the invention.

Furthermore, there may be further incorporated in the fabric softener composition of the invention a pigment or a dye for improving appearance of the product, a fluorescent whitener for improving finished whiteness, and a perfume for improving a sensory value during use and after finishing.

The fabric softener composition of the invention can be prepared in the form of a solution, a suspension, an emulsion or the like in a conventional manner.

The fabric softener composition of the present invention imparts the sufficient softness, the antistaticity and the resiliency (fluffy feeling) to clothes of various fabrics.

The present invention is illustrated by the following examples in further detail. However, the present invention is not restricted thereby.

The compounds used in the examples and comparative examples are set forth in Table 1 below.

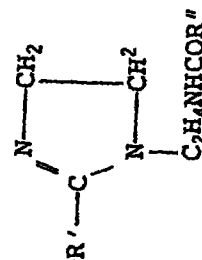
TABLE 1

Compound	Formula	R ¹ to R ⁵ and m in formula	Neutralizing agent	Quaternizing agent
A-11	A-1	R ¹ : Methyl R ² CO, R ³ CO: Hydrogenated tallow fatty acid residue m: 2	Hydrochloric acid	-
A-12	A-1	R ¹ : Hydroxyethyl R ² CO, R ³ CO: Oleoyl m: 2	Glycolic acid	-
A-13	A-1	R ¹ : Hydroxyethyl R ² CO, R ³ CO: Lauroyl/stearoyl (1:1) m: 2	-	CH ₃ Cl
A-21	A-2	R ² : Stearyl R ³ CO: Lauroyl R ⁴ : Methyl	Glycolic acid	-
A-22	A-2	R ² : Hydrogenated tallow alkyl R ³ CO: Stearoyl R ⁴ : Methyl	Hydrochloric acid	-
A-31	A-3	R ¹ : Methyl R ³ CO: Stearoyl R ⁵ : Stearyl	Hydrochloric acid	-

TABLE 1 (cont'd)

<u>Compound</u>	<u>Formula</u>	<u>R¹ to R⁵ and m in formula</u>	<u>Neutralizing agent</u>	<u>Quaternizing agent</u>
A-32	A-3	R ¹ : Methyl R ³ CO: Unhydrogenated tallow fatty acid residue R ⁵ : Oleyl	Acetic acid	-
B-1	-	Di-hydrogenated tallow alkyl-dimethylammonium chloride	-	-
B-2	B ¹)	R ¹ : Stearyl R ² CO: Stearoyl	Hydrochloric acid	-

Note: 1) Formula (B):



EXAMPLES 1 - 12

The compositions indicated in Table 2 were evaluated for the softness and the resiliency by the following test.

Evaluation of softness and resiliency

(1) Method:

5 Using a 30 l laundering machine, 2 kg of commercial cotton towels and 1 kg of acrylic jersey fabrics were laundered in 3.5° DH hard water with a commercial detergent (Attack, tradename, a product of Kao Corporation) 5 times to remove the textile finishes from the respective fibers. Then, 1.5 g of one of the compositions indicated in Table 2 was added and the wash load was treated under pulsation at 25° C for 1 minute.

10 In each of the test compositions, a polyoxyethylene-modified dimethylpolysiloxane was incorporated in the amount of 1 % by weight based on the total amount of the compound according to the invention. The balance was water.

(2) Evaluation method:

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The fabrics treated as above were dried in the interior atmosphere and, then, allowed to stand in a constant temperature-humidity chamber controlled at 25° C and 65% RH.

The fabrics were then evaluated for the softness and the resiliency.

20 The evaluation of the softness and the resiliency was performed by five expert panelists by the method of paired comparison using a fabric treated with 10 cm³ of a softening agent containing 15 % by weight of di-hydrogenated tallow-alkyl dimethylammonium chloride as a reference control. The scoring schema was as follows.

+2: Definitely superior to control in the softness or the resiliency

+1: Slightly superior to control in the softness or the resiliency

25 0: Equivalent to control

-1: Slightly inferior to control in the softness or the resiliency

-2: Definitely inferior to control in the softness or the resiliency

The results are indicated by the mean values of the evaluation results of the five panelists.

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TABLE 2
(Softness and resiliency)

	<u>Formulation</u> (% by weight)		<u>Performance</u>	
	<u>Compound according to the invention</u>	<u>Other ingredient</u>	<u>Softness</u>	<u>Resiliency</u>
10	Example 1 A-11 (18)	-	+1	+1
	Example 2 A-11 (15)	B-1 (3)	0	+2
	Example 3 A-12 (15)	-	0	+1
15	Example 4 A-13 (18)	-	+1	+1
	Example 5 A-21 (18)	-	+1	+1
	Example 6 A-21 (15)	B-2 (3)	0	+2
	Example 7 A-22 (18)	-	+1	+1
	Example 8 A-22 (15)	B-1 (3)	+1	+2
25	Example 9 A-22 (13)	B-2 (5)	+1	+2
	Example 10 A-31 (18)	-	+1	+1
30	Example 11 A-31 (15)	B-1 (3)	+1	+2
	Example 12 A-32 (15)	-	0	+1
35	Comparative Example 1 -	B-1 (15)	0	0
	Comparative Example 2 -	B-2 (15)	0	0

It is apparent from Table 2 that the use of the compound of the invention leads to satisfactory results in both terms of the softness and resiliency.

45 EXAMPLES 13 - 15 and COMPARATIVE EXAMPLES 3 and 4

Using the compositions indicated in Table 3, the stacking height of cotton towels was measured for evaluation of the resiliency.

50 Evaluation of resiliency:

Three cotton towels, treated as in the manner of Examples 1 through 12 and each folded in 8, were stacked up and compressed under a pressure load of 5 g/cm² for 5 minutes. The pressing load was then removed and the height of the stack was measured. The higher height of the stack indicates the higher resiliency of the towels.

TABLE 3
Evaluation of resiliency (stacking height of towels)

	<u>Formulation</u>	<u>Resiliency</u> <u>(height of stack)</u> (cm)
5		
	Example 13	Same as Example 4
10	Example 14	Same as Example 8
	Example 15	Same as Example 11
15	Comparative Example 3	Same as Comparative Example 1
	Comparative Example 4	Same as Comparative Example 2
20		

EXAMPLE 16

25 An aqueous fabric softener composition of the following formulation was prepared.

(Formulation)

30	<u>Component</u>	<u>Amount</u> (by weight)
	The neutralization product of di-long chain tertiary amine compound (A-11)	18 %
35	Polyoxyethylene (average added moles: 20) lauryl ether	1 %
	Calcium chloride	0.1 %
40	Perfume	0.4 %
	Dye	20 ppm
45	Defoaming agent	100 ppm
	Water	balance

50 This aqueous fabric softener composition imparted to clothes of softness with good resiliency. Also, this aqueous fabric softener composition showed good dispersion stability at storage for a long period of time.

Claims

Claims for the following Contracting States : AT, BE, CH, DE, FR, GB, IT, LI, NL, SE

55

1. An aqueous fabric softener composition comprising water and a neutralization product of:
(A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):



TABLE 3
Evaluation of resiliency (stacking height of towels)

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	Comparative Example 4	Same as Comparative Example 2
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EXAMPLE 16

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	Water	balance

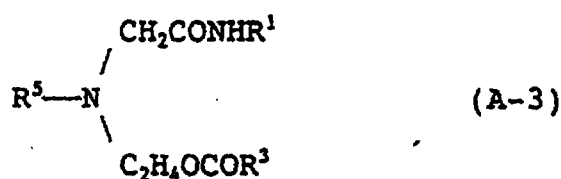
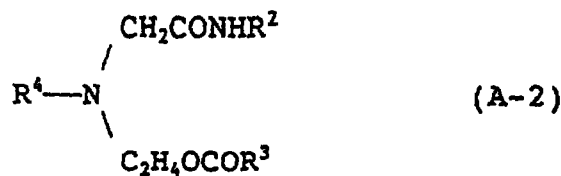
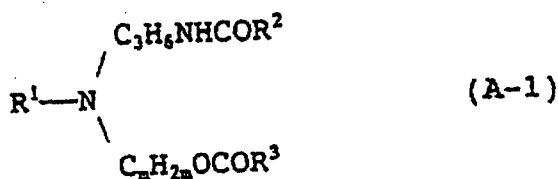
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Claims

Claims for the following Contracting States : AT, BE, CH, DE, FR, GB, IT, LI, NL, SE

55

1. An aqueous fabric softener composition comprising water and a neutralization product of:
(A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):



wherein R¹ represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;

R², R³ each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;

R⁴ represents an alkyl group containing from 1 to 4 carbon atoms;

R⁵ represents an alkyl or alkenyl group containing from 12 to 22 carbon atoms; and

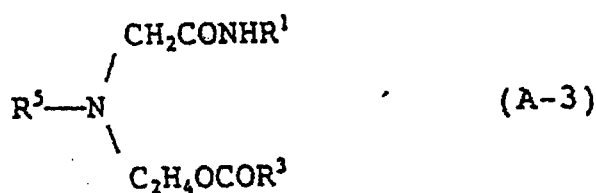
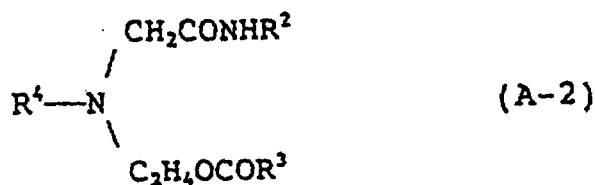
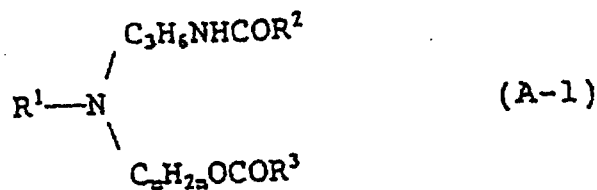
m is 2 or 3,

with

(B) an inorganic acid or an organic acid containing from 1 to 6 carbon atoms;

a quaternization product of said compound (A) or a mixture of said neutralization product of said Compound (A) with said Compound (B) and quaternization product of said Compound (A).

2. An aqueous fabric softener composition of claim 1 wherein said quaternization product of said Compound (A) is a compound obtained by quaternization of said Compound (A) with methyl chloride or a dialkyl sulfate.
3. An aqueous fabric softener composition of claim 1 wherein an amount of said neutralization product of said Compound (A), said quaternization product of said Compound (A) or a mixture of said neutralization product of said Compound (A) and said quaternization product of said Compound (A) ranges from 4 to 40 % by weight.
4. A neutralization product of:
 - (A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):



wherein R¹ represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;
 R², R³ each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;
 R⁴ represents an alkyl group containing from 1 to 4 carbon atoms;
 R⁵ represents an alkyl or alkenyl group containing from 12 to 22 carbon atoms; and
 m is 2 or 3,

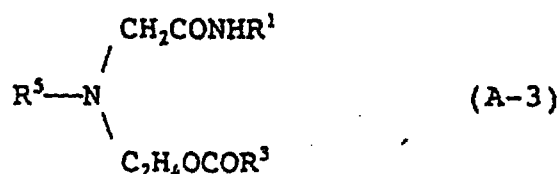
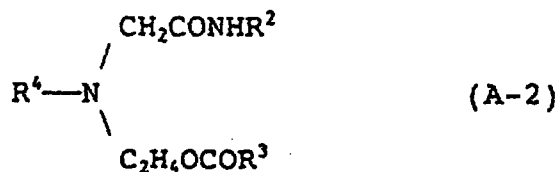
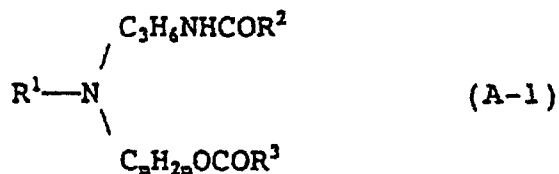
with

(B) an inorganic acid or an organic acid containing from 1 to 6 carbon atoms, or a quaternization product of said Compound (A).

5. A quaternization product of claim 4 wherein said quaternization product of said Compound (A) is a compound obtained by quaternization of said Compound (A) with methyl chloride or a dialkyl sulfate.

Claims for the following Contracting State : ES

1. An aqueous fabric softener composition comprising water and a neutralization product of:
 (A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):



wherein R¹ represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;

R², R³ each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;

R⁴ represents an alkyl group containing from 1 to 4 carbon atoms;

R⁵ represents an alkyl or alkenyl group containing from 12 to 22 carbon atoms; and

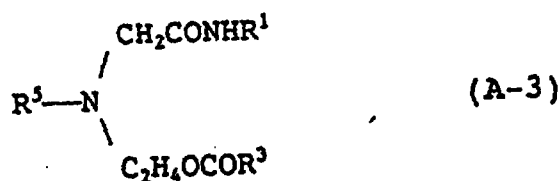
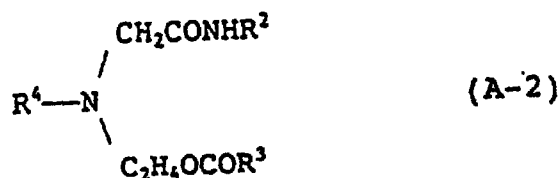
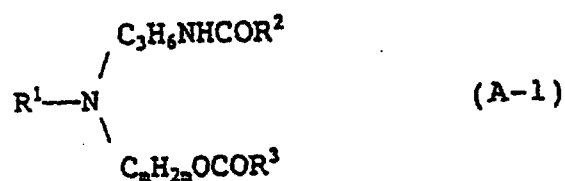
m is 2 or 3;

with

(B) an inorganic acid or an organic acid containing from 1 to 6 carbon atoms;

a quaternization product of said Compound (A) or a mixture of said neutralization product of said Compound (A) with said Compound (B) and said quaternization product of said Compound (A).

2. An aqueous fabric softener composition of claim 1 wherein said quaternization product of said Compound (A) is a compound obtained by quaternization of said Compound (A) with methyl chloride or a dialkyl sulfate.
3. An aqueous fabric softener composition of claim 1 wherein an amount of said neutralization product of said Compound (A), said quaternization product of said Compound (A) or a mixture of said neutralization product of said Compound (A) and said quaternization product of said Compound (A) ranges from 4 to 40 % by weight.
4. A process for preparing an aqueous fabric softener composition characterized by mixing water and a neutralization product of:
 - (A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):



wherein R¹ represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;

R², R³ each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;

R⁴ represents an alkyl group containing from 1 to 4 carbon atoms;

R⁵ represents an alkyl or alkenyl group containing from 12 to 22 carbon atoms; and

m is 2 or 3;

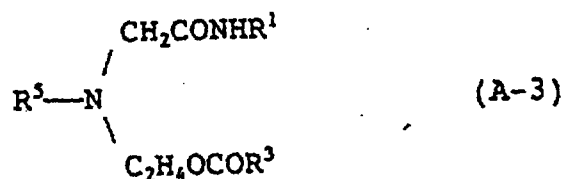
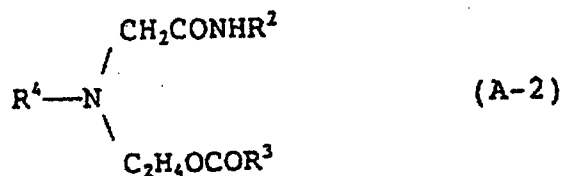
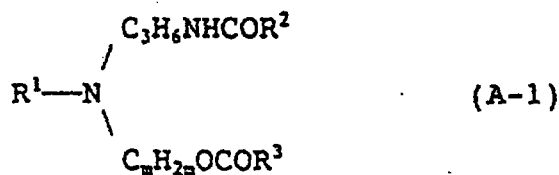
with

(B) an inorganic acid or an organic acid containing from 1 to 6 carbon atoms;

a quaternization product of said Compound (A) or a mixture of said neutralization product of said Compound (A) with said Compound (B) and said quaternization product of said Compound (A).

5. Use of a neutralization product of:

(A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):



wherein R¹ represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;

R², R³ each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;

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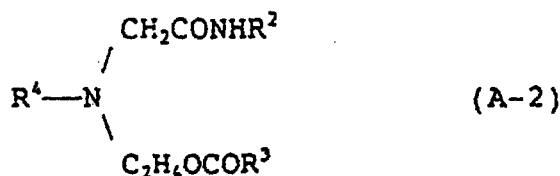
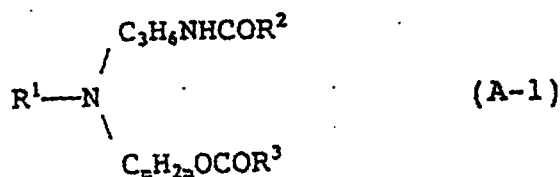
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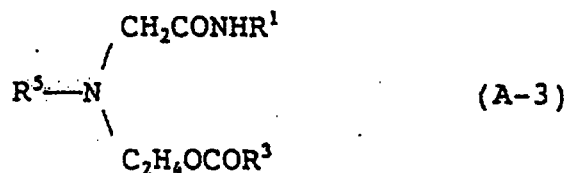
with

(B) an inorganic acid or an organic acid containing from 1 to 6 carbon atoms;

a quaternization product of said Compound (A) or a mixture of said neutralization product of said Compound (A) with said Compound (B) and said quaternization product of said Compound (A) for an aqueous fabric softener composition.

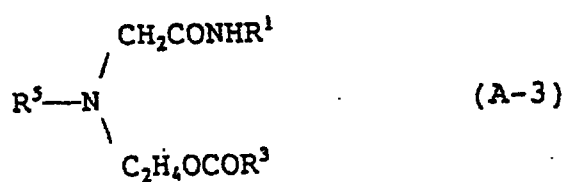
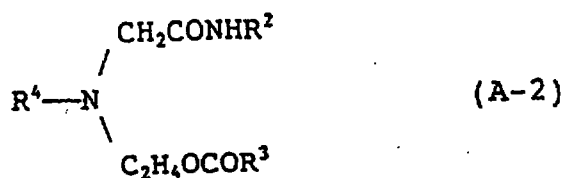
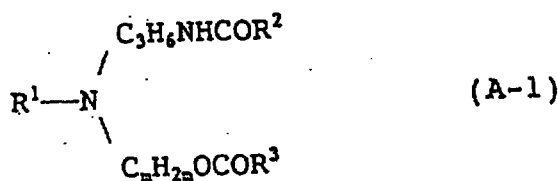
6. A process for preparing a neutralization product characterized by neutralizing (A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):





wherein R^1 represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;
 R^2 , R^3 each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;
 R^4 represents an alkyl group containing from 1 to 4 carbon atoms;
 R^5 represents an alkyl or alkenyl group containing from 12 to 22 carbon atoms; and
 m is 2 or 3;
 with
 (B) an inorganic acid or an organic acid containing from 1 to 6 carbon atoms.

7. A process for preparing a quaternization product characterized by quaternizing
 (A) at least one compound selected from the compounds represented by formulas (A-1) through (A-3):

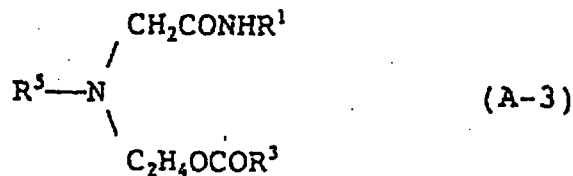
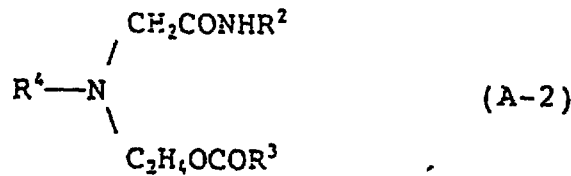
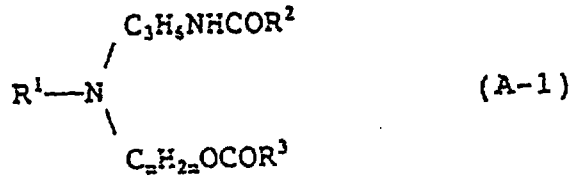


wherein R^1 represents an alkyl or hydroxyalkyl group containing from 1 to 4 carbon atoms;
 R^2 , R^3 each represents an alkyl or alkenyl group containing from 11 to 21 carbon atoms;
 R^4 represents an alkyl group containing from 1 to 4 carbon atoms;
 R^5 represents an alkyl or alkenyl group containing from 12 to 22 carbon atoms; and
 m is 2 or 3;
 with methyl chloride or a dialkyl sulfate.

**Patentansprüche**

Patentansprüche für folgende Vertragsstaaten : AT, BE, CH, DE, FR, GB, IT, LI, NL, SE

1. Wässrige Textil-Weichmacherzusammensetzung, die Wasser und ein Neutralisierungsprodukt von:
(A) mindestens einer Verbindung, ausgewählt aus den Verbindungen der Formeln (A-1) bis (A-3):



worin gilt: R¹ stellt eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
R² und R³ stellen jeweils eine Alkyl- oder Alkenylgruppe mit 11 bis 21 Kohlenstoffatomen dar;
R⁴ stellt eine Alkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
R⁵ stellt eine Alkyl- oder Alkenylgruppe mit 12 bis 22 Kohlenstoffatomen dar; und
m ist 2 oder 3,

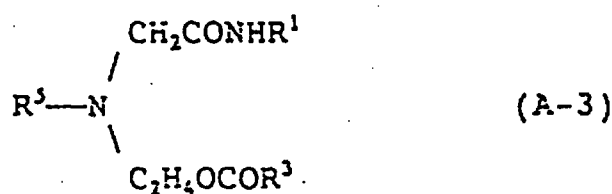
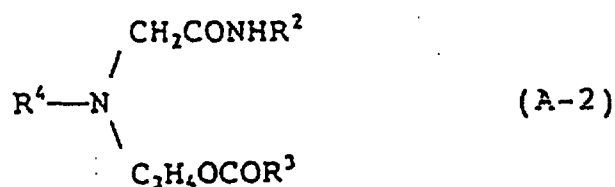
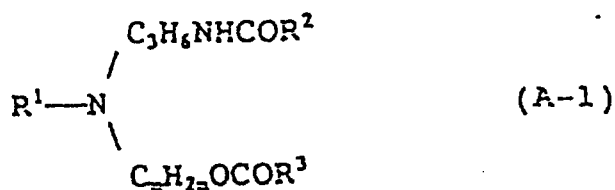
mit

(B) einer anorganischen Säure oder einer organischen Säure mit 1 bis 6 Kohlenstoffatomen,
ein Quaternierungsprodukt von Verbindung (A) oder eine Mischung des Neutralisationsprodukts von
Verbindung (A) mit Verbindung (B) und des Quaternierungsprodukts von Verbindung (A) enthält.

2. Wässrige Textil-Zusammensetzung gemäß Anspruch 1, worin das genannte Quaternierungsprodukt der
genannten Verbindung (A) eine Verbindung ist, die durch Quaternierung der genannten Verbindung (A)
mit Methylchlorid oder einem Dialkylsulfat erhältlich ist.
3. Wässrige Textil-Weichmacherzusammensetzung gemäß Anspruch 1, worin die Menge des genannten
Neutralisationsprodukts der genannten Verbindung (A), des genannten Quaternierungsprodukts der
genannten Verbindung (A) oder der Mischung aus genanntem Neutralisationsprodukt von genannter
Verbindung (A) und genanntem Quaternierungsprodukt von genannter Verbindung (A) 4 bis 40 Gew.%
beträgt.
4. Neutralisationsprodukt von:



(A) mindestens einer Verbindung, ausgewählt aus den Verbindungen der Formeln (A-1) bis (A-3):

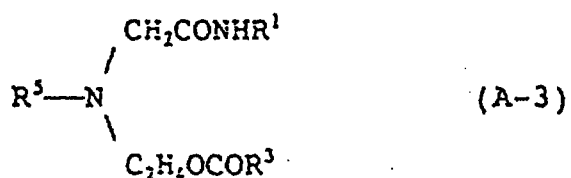
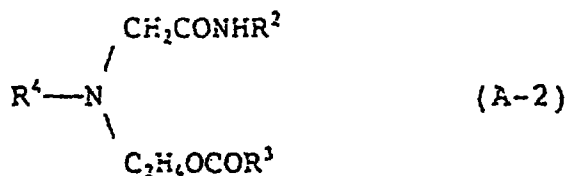
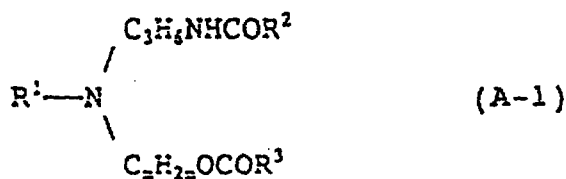


worin gilt: R¹ stellt eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R² und R³ stellen jeweils eine Alkyl- oder Alkenylgruppe mit 11 bis 21 Kohlenstoffatomen dar;
 R⁴ stellt eine Alkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R⁵ stellt eine Alkyl- oder Alkenylgruppe mit 12 bis 22 Kohlenstoffatomen dar; und
 m ist 2 oder 3,
 mit
 (B) einer anorganischen Säure oder einer 1 bis 6 Kohlenstoffatome enthaltenden organischen Säure,
 oder Quaternierungsprodukt von genannter Verbindung (A).

5. Quaternierungsprodukt gemäß Anspruch 4,
 worin das genannte Quaternierungsprodukt von genannter Verbindung (A) eine Verbindung ist, die
 durch Quaternierung von genannter Verbindung (A) mit Methylchlorid oder einem Dialkylsulfat erhältlich
 ist.


Patentansprüche für folgenden Vertragsstaat : ES

1. Wässrige Textil-Weichmacherzusammensetzung, die Wasser und ein Neutralisierungsprodukt von:
(A) mindestens einer Verbindung, ausgewählt aus den Verbindungen der Formeln (A-1) bis (A-3):

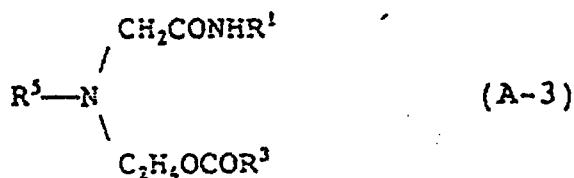
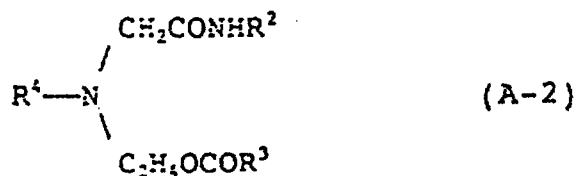
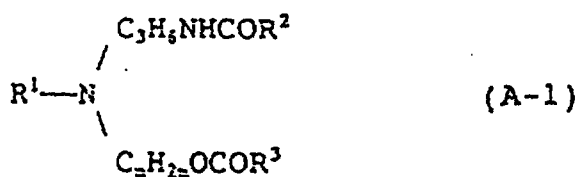


worin gilt: R¹ stellt eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
R² und R³ stellen jeweils eine Alkyl- oder Alkenylgruppe mit 11 bis 21 Kohlenstoffatomen dar;
R⁴ stellt eine Alkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
R⁵ stellt eine Alkyl- oder Alkenylgruppe mit 12 bis 22 Kohlenstoffatomen dar; und
m ist 2 oder 3,
mit
(B) einer anorganischen Säure oder einer organischen Säure mit 1 bis 6 Kohlenstoffatomen,
ein Quaternierungsprodukt von Verbindung (A) oder eine Mischung des Neutralisationsprodukts von
Verbindung (A) mit Verbindung (B) und des Quaternierungsprodukts von Verbindung (A) enthält.

2. Wässrige Textil-Zusammensetzung gemäß Anspruch 1, worin das genannte Quaternierungsprodukt der genannten Verbindung (A) eine Verbindung ist, die durch Quaternierung der genannten Verbindung (A) mit Methylchlorid oder einem Dialkylsulfat erhältlich ist.
3. Wässrige Textil-Weichmacherzusammensetzung gemäß Anspruch 1, worin die Menge des genannten Neutralisationsprodukts der genannten Verbindung (A), des genannten Quaternierungsprodukts der genannten Verbindung (A) oder der Mischung aus genanntem Neutralisationsprodukt von genannter Verbindung (A) und genanntem Quaternierungsprodukt von genannter Verbindung (A) 4 bis 40 Gew.% beträgt.
4. Verfahren zur Herstellung einer wässrigen Textil-Weichmacherzusammensetzung, dadurch gekennzeichnet, daß man Wasser und ein Neutralisationsprodukt von:



(A) mindestens einer Verbindung, ausgewählt aus den Verbindungen der Formeln (A-1) bis (A-3):

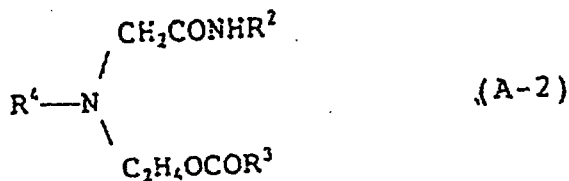
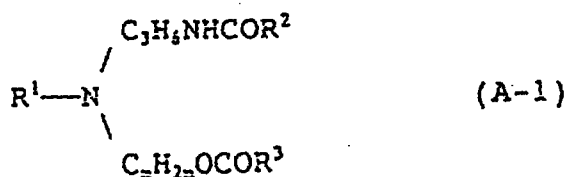


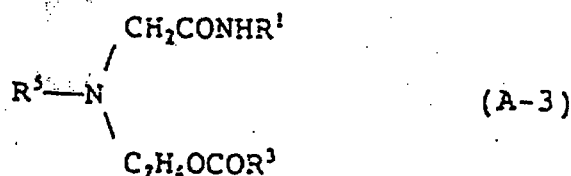
worin gilt: R¹ stellt eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
R² und R³ stellen jeweils eine Alkyl- oder Alkenylgruppe mit 11 bis 21 Kohlenstoffatomen dar;
R⁴ stellt eine Alkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
R⁵ stellt eine Alkyl- oder Alkenylgruppe mit 12 bis 22 Kohlenstoffatomen dar; und
m ist 2 oder 3,
mit

(B) einer anorganischen Säure oder einer organischen Säure mit 1 bis 6 Kohlenstoffatomen,
ein Quaternierungsprodukt von Verbindung (A) oder eine Mischung des genannten Neutralisations-
produkts von genannter Verbindung (A) mit genannter Verbindung (B) und des genannten Quaternie-
rungsprodukts von genannter Verbindung (A) vermischt.

5. Verwendung eines Neutralisationsprodukts von:

(A) mindestens einer Verbindung, ausgewählt aus den Verbindungen der Formeln (A-1) bis (A-3):



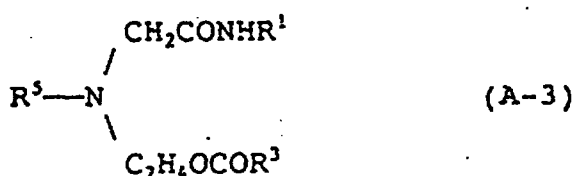
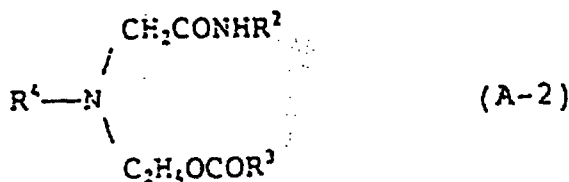
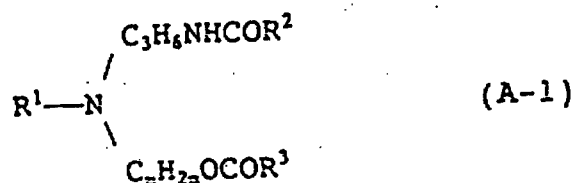


worin gilt: R¹ stellt eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R² und R³ stellen jeweils eine Alkyl- oder Alkenylgruppe mit 11 bis 21 Kohlenstoffatomen dar;
 R⁴ stellt eine Alkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R⁵ stellt eine Alkyl- oder Alkenylgruppe mit 12 bis 22 Kohlenstoffatomen dar; und
 m ist 2 oder 3,

mit

(B) einer anorganischen Säure oder einer organischen Säure mit 1 bis 6 Kohlenstoffatomen,
 eines Quaternierungsprodukts von genannter Verbindung (A) oder einer Mischung des genannten
 Neutralisationsprodukts von genannter Verbindung (A) mit genannter Verbindung (B) und des
 genannten Quaternierungsprodukts von genannter Verbindung (A) für eine wässrige Textil-Weichma-
 cherzusammensetzung.

6. Verfahren zur Herstellung eines Neutralisationsprodukts, gekennzeichnet durch Neutralisierung von (A) mindestens einer Verbindung, ausgewählt aus den Verbindungen der Formeln (A-1) bis (A-3):



worin gilt: R¹ stellt eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R² und R³ stellen jeweils eine Alkyl- oder Alkenylgruppe mit 11 bis 21 Kohlenstoffatomen dar;
 R⁴ stellt eine Alkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R⁵ stellt eine Alkyl- oder Alkenylgruppe mit 12 bis 22 Kohlenstoffatomen dar; und
 m ist 2 oder 3,

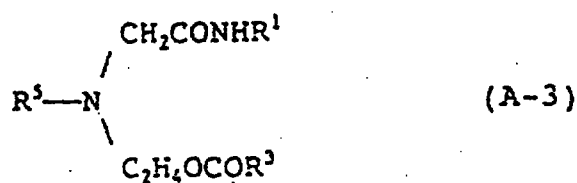
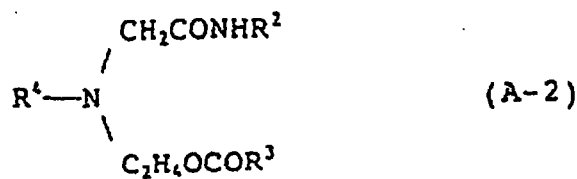
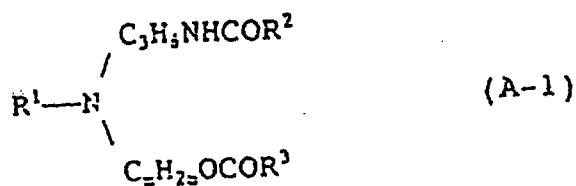
mit

(B) einer anorganischen Säure oder einer 1 bis 6 Kohlenstoffatome enthaltenden organischen Säure.

7. Verfahren zur Herstellung eines Quaternierungsprodukts, gekennzeichnet durch Quaternierung von



(A) mindestens einer Verbindung, ausgewählt aus den Verbindungen der Formeln (A-1) bis (A-3):



worin gilt: R¹ stellt eine Alkyl- oder Hydroxyalkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R² und R³ stellen jeweils eine Alkyl- oder Alkenylgruppe mit 11 bis 21 Kohlenstoffatomen dar;
 R⁴ stellt eine Alkylgruppe mit 1 bis 4 Kohlenstoffatomen dar;
 R⁵ stellt eine Alkyl- oder Alkenylgruppe mit 12 bis 22 Kohlenstoffatomen dar; und
 m ist 2 oder 3,
 mit Methylchlorid oder einem Dialkylsulfat.

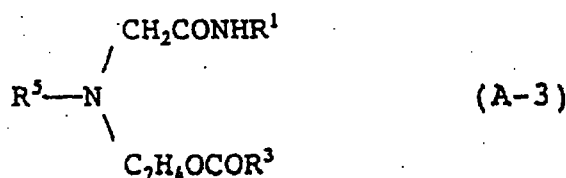
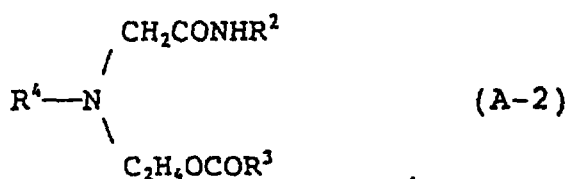
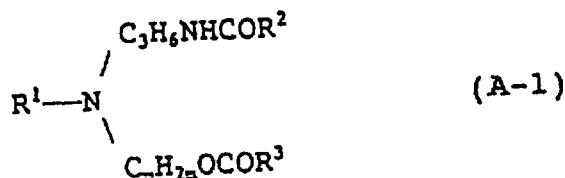


Revendications

Revendications pour les Etats contractants suivants : AT, BE, CH, DE, FR, GB, IT, LI, NL, SE

1. Composition aqueuse d'adoucissant d'étoffe comprenant de l'eau et un produit de neutralisation :

(A) d'au moins un composé choisi parmi les composés représentés par les formules (A-1) à (A-3) :



dans lesquelles R¹ représente un groupement alkyle ou hydroxyalkyle en C₁-C₄ ;

R², R³ représentent chacun un groupement alkyle ou alcényle en C₁₁-C₂₁ ;

R⁴ représente un groupement alkyle en C₁-C₄ ;

R⁵ représente un groupement alkyle ou alcényle en C₁₂-C₂₂ ; et

m vaut 2 ou 3,

avec

(B) un acide inorganique ou un acide organique en C₁-C₆ ; un produit de transformation en dérivé quaternaire dudit composé (A) ou un mélange dudit produit de neutralisation dudit composé (A) avec ledit composé (B) et le produit de transformation en dérivé quaternaire dudit composé (A).

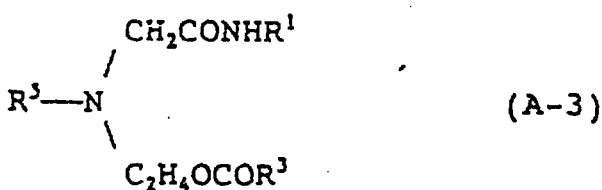
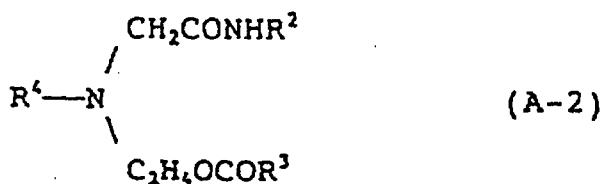
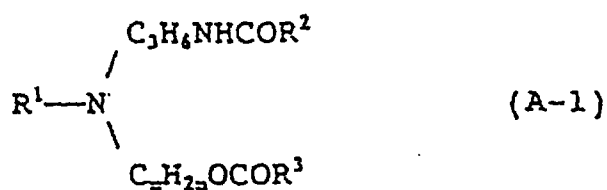
2. Composition aqueuse d'adoucissant d'étoffe selon la revendication 1, dans laquelle ledit produit de transformation en dérivé quaternaire dudit composé (A) est un composé obtenu par transformation en dérivé quaternaire dudit composé (A) avec du chlorure de méthyle ou avec un dialkylsulfate.

3. Composition aqueuse d'adoucissant d'étoffe selon la revendication 1, dans laquelle la quantité dudit produit de neutralisation dudit composé (A), dudit produit de transformation en dérivé quaternaire dudit composé (A) ou d'un mélange dudit produit de neutralisation dudit composé (A) et dudit produit de transformation en dérivé quaternaire dudit composé (A) est comprise entre 4 et 40 % en masse.

4. Produit de neutralisation :



(A) d'au moins un composé choisi parmi les composés représentés par les formules (A-1) à (A-3) :



dans lesquelles R¹ représente un groupement alkyle ou hydroxyalkyle en C₁-C₄ ;

R², R³ représentent chacun un groupement alkyle ou alcényle en C₁₁-C₂₁ ;

R⁴ représente un groupement alkyle en C₁-C₄ ;

R⁵ représente un groupement alkyle ou alcényle en C₁₂-C₂₂ ; et

m vaut 2 ou 3,

avec

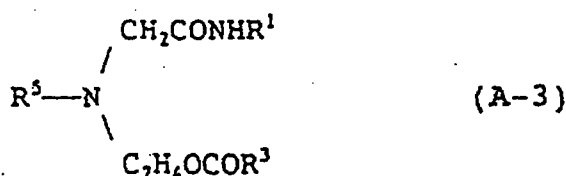
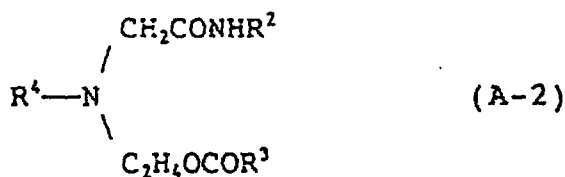
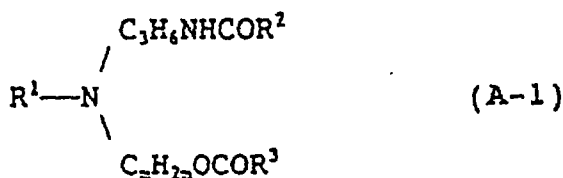
(B) un acide inorganique ou un acide organique en C₁-C₆ ou un produit de transformation en dérivé quaternaire dudit composé (A).

5. Produit de transformation en dérivé quaternaire selon la revendication 4, dans lequel ledit produit de transformation en dérivé quaternaire dudit composé (A) est un composé obtenu par transformation en dérivé quaternaire dudit composé (A) avec du chlorure de méthyle ou avec un dialkylsulfate.



Revendications pour l'Etat contractant suivant : ES

1. Composition aqueuse d'adoucissant d'étoffe comprenant de l'eau et un produit de neutralisation :
(A) d'au moins un composé choisi parmi les composés représentés par les formules (A-1) à (A-3) :



dans lesquelles R¹ représente un groupement alkyle ou hydroxyalkyle en C₁-C₄ ;

R², R³ représentent chacun un groupement alkyle ou alcényle en C₁₁-C₂₁ ;

R⁴ représente un groupement alkyle en C₁-C₄ ;

R⁵ représente un groupement alkyle ou alcényle en C₁₂-C₂₂ ; et

m vaut 2 ou 3,

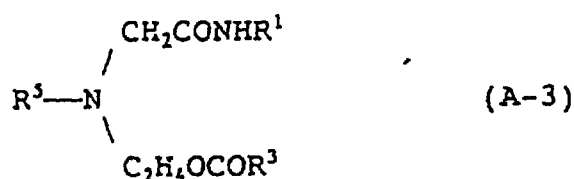
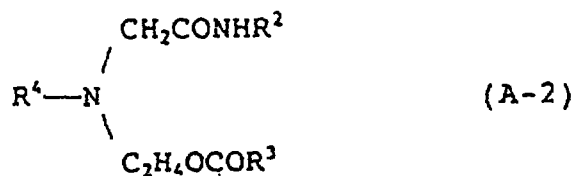
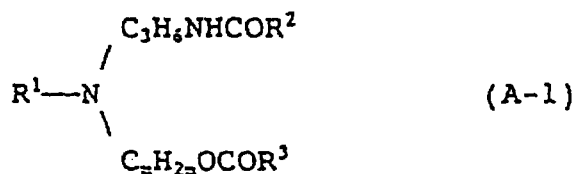
avec

(B) un acide inorganique ou un acide organique en C₁-C₆ ; un produit de transformation en dérivé quaternaire dudit composé (A) ou un mélange dudit produit de neutralisation dudit composé (A) avec ledit composé (B) et ledit produit de transformation en dérivé quaternaire dudit composé (A).

2. Composition aqueuse d'adoucissant d'étoffe selon la revendication 1, dans laquelle ledit produit de transformation en dérivé quaternaire dudit composé (A) est un composé obtenu par transformation en dérivé quaternaire dudit composé (A) avec du chlorure de méthyle ou avec un dialkylsulfate.
3. Composition aqueuse d'adoucissant d'étoffe selon la revendication 1, dans laquelle la quantité dudit produit de neutralisation dudit composé (A), dudit produit de transformation en dérivé quaternaire dudit composé (A) ou d'un mélange dudit produit de neutralisation dudit composé (A) et dudit produit de transformation en dérivé quaternaire dudit composé (A) est comprise entre 4 et 40 % en masse.
4. Procédé de préparation d'une composition aqueuse d'adoucissant d'étoffe caractérisé par le mélange d'eau et d'un produit de neutralisation :



(A) d'au moins un composé choisi parmi les composés représentés par les formules (A-1) à (A-3) :



dans lesquelles R¹ représente un groupement alkyle ou hydroxyalkyle en C₁-C₄ ;

R², R³ représentent chacun un groupement alkyle ou alcényle en C₁₁-C₂₁ ;

R⁴ représente un groupement alkyle en C₁-C₄ ;

R⁵ représente un groupement alkyle ou alcényle en C₁₂-C₂₂ ; et

m vaut 2 ou 3,

avec

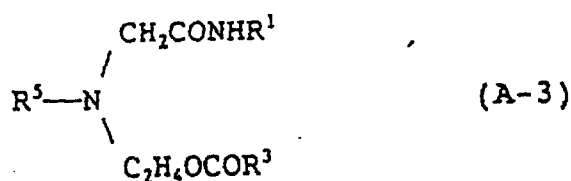
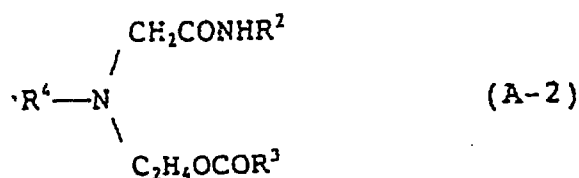
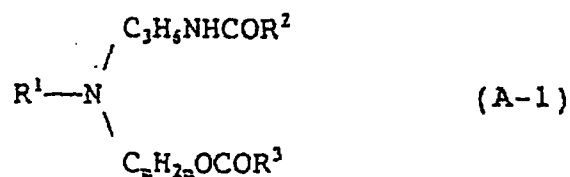
(B) un acide inorganique ou un acide organique en C₁-C₆ ;

d'un produit de transformation en dérivé quaternaire dudit composé (A) ou d'un mélange dudit produit de neutralisation dudit composé (A) avec ledit composé (B) et ledit produit de transformation en dérivé quaternaire dudit composé (A).

5. Utilisation d'un produit de neutralisation :



(A) d'au moins un composé choisi parmi les composés représentés par les formules (A-1) à (A-3) :



dans lesquelles R¹ représente un groupement alkyle ou hydroxyalkyle en C₁-C₄ ;

R², R³ représentent chacun un groupement alkyle ou alcényle en C₁₁-C₂₁ ;

R⁴ représente un groupement alkyle en C₁-C₄ ;

R⁵ représente un groupement alkyle ou alcényle en C₁₂-C₂₂ ; et

m vaut 2 ou 3,

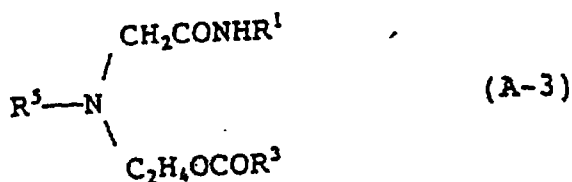
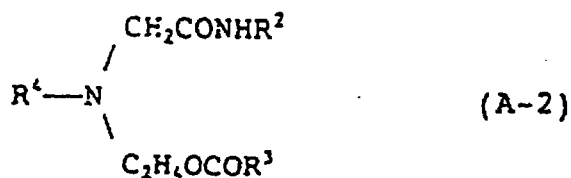
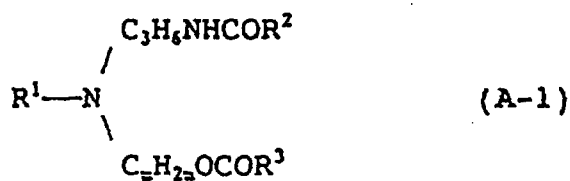
avec

(B) un acide inorganique ou un acide organique en C₁-C₆ ; d'un produit de transformation en dérivé quaternaire dudit composé (A) ou d'un mélange dudit produit de neutralisation dudit composé (A) avec ledit composé (B) et ledit produit de transformation en dérivé quaternaire dudit composé (A) pour une composition aqueuse d'adouccissant d'étoffe.

6. Procédé de préparation d'un produit de neutralisation caractérisé par la neutralisation



(A) d'au moins un composé choisi parmi les composés représentés par les formules (A-1) à (A-3) :



dans lesquelles R¹ représente un groupement alkyle ou hydroxyalkyle en C₁-C₄ ;

R², R³ représentent chacun un groupement alkyle ou alcényle en C₁₁-C₂₁ ;

R⁴ représente un groupement alkyle en C₁-C₄ ;

R⁵ représente un groupement alkyle ou alcényle en C₁₂-C₂₂ ; et

m vaut 2 ou 3 ;

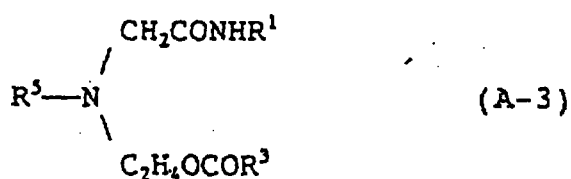
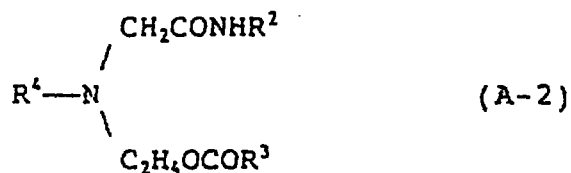
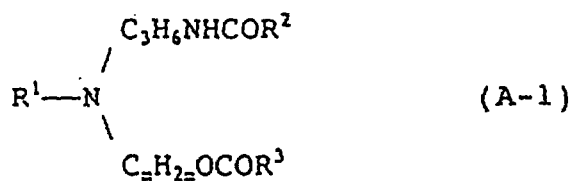
avec

(B) un acide inorganique ou un acide organique en C₁-C₆.

7. Procédé de préparation d'un produit de transformation en dérivé quaternaire caractérisé par la transformation en dérivé quaternaire



(A) d'au moins un composé choisi parmi les composés représentés par les formules (A-1) à (A-3) :



dans lesquelles R¹ représente un groupement alkyle ou hydroxyalkyle en C₁-C₄ ;
 R², R³ représentent chacun un groupement alkyle ou alcényle en C₁₁-C₂₁ ;
 R⁴ représente un groupement alkyle en C₁-C₄ ;
 R⁵ représente un groupement alkyle ou alcényle en C₁₂-C₂₂ ; et
 m vaut 2 ou 3 ;
 avec du chlorure de méthyle ou avec un dialkylsulfate.