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(54) **PASTE-LIKE CONCENTRATE SUITABLE TO FORM STABLE (NON SEPERATING) ALKALINE CLEANING AND DETERGENT SOLUTIONS**

GEEIGNETES PASTENFÖRMIGES KONZENTRAT ZUR HERSTELLUNG VON STABILEN, SICH NICHT ENTMISCHENDEN ALKALISCHEN REINIGUNGS- UND WASCHMITTELLÖSUNGEN

CONCENTRE EN PATE POUVANT FORMER DES SOLUTIONS DETERGENTES ET DE LAVAGE, ALCALINES ET STABLES (PAS DE SEPARATION)

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EP 1 751 265 B1

Description

[0001] The present invention refers to a paste-like thixotropic detergent or cleaning concentrate which is able to form a stable (non separating) alkaline parent lye for use as cleansing agent or detergent, preferably for the machine cleaning of textiles, a parent lye containing said concentrate and to a method for washing textiles using said concentrate in diluted form as a parent lye.

[0002] In industrial laundries nowadays the single washing machines are centrally supplied with the solution of a detergent or cleaning agent, the so called parent lye, to maximize the capacity of the laundry and the machinery and to optimise the course of the process. Generally, the central supply proceeds using a parent lye which contains 5 to 15 wt.-% of the cleaning agent or detergent and which is distributed from a reservoir to the single washing machines, in most cases without further diluting. Accordingly, a cleaning agent or detergent suitable for use in industrial laundries must be capable to form a stable (non separating) alkaline cleaning or detergent solution to ensure a constantly excellent cleaning or washing performance.

[0003] Cleaning and detergent compositions formulated in particulate form are well known to form stable (non separating) alkaline cleaning or detergent solutions. However, generally large amounts of parent lye are prepared and stored in a reservoir to be subsequently distributed to the single washing machines. This means a corresponding amount of solid detergent or cleaning agent, respectively, has to be dissolved to form the parent lye, which takes a lot of time and effort.

[0004] Moreover, large amounts of solid, especially particulate, detergents show problems with respect to homogeneity if they are stored before being used to form the parent lye and not consumed at one go. This is because the single components in the detergent exhibit different volumes and densities which results in the active components migrating to the bottom of the reservoir upon storage. Accordingly, if the parent lyes are prepared using a detergent powder stored in a reservoir, this migrating process may take place therein while consuming the parent lye. The following parent lyes may then exhibit a more and more decreased cleaning performance due to the more and more decreasing content of active agent in the solid detergent. The parent lye formed from the detergent on the bottom of the reservoir, where the active ingredient accumulated, then again exhibits excellent cleaning performance.

[0005] Accordingly there is a need to provide stable homogenous paste-like detergent or cleaning concentrates which are easily batched and dissolved to form a stable parent lye and exhibit excellent cleaning properties, especially in laundry application.

[0006] US 6187739 discloses paste-form washing and cleaning agents comprising nonionic surfactants selected from ethoxylated and optionally propoxylated alcohols.

[0007] Yet, the actually known paste-like detergent and cleaning concentrates do not exhibit this combination of properties. In particular, a large amount of a non-ionic surfactant blend is required as liquid component to provide those concentrates with a viscid to highly viscous consistency. Accordingly, when forming a parent lye, those concentrates generally show poor solubility and do not form stable (non separating) solutions. Even the use of emulsifiers in large amounts which increases costs and complicates the disposal of the resulting waste water, did not provide a homogenous, stable parent lye. This results in the requirement of vigorous stirring in the vessel during storage of the parent lye to ensure a more or less homogenous distribution of the detergent concentrate. In most cases not even vigorous stirring provides a homogenous parent lye.

[0008] Moreover, nowadays it is very important to provide cleaning agents and detergents which do not only exhibit excellent cleaning properties but which are as well accessible to the common waste water purification systems. If the waste water and/or a part of the detergent solution accumulating after the washing process has been carried out is treated by membrane filtration, many non-ionic surfactants cause considerable problems. Depending on the choice of non-ionic surfactant, this may even lead to blocking-up of the membranes. This point is to be deemed particularly critical in membrane filtration processes in the course of which at least one reverse osmosis step occurs.

[0009] Therefore, the object of the present invention is to provide a cleaning or detergent concentrate which on one hand forms a stable paste as such and on the other hand also forms a stable (non separating) alkaline cleaning or detergent solution when dissolved in water. Additionally, it should be possible to purify waste water resulting from the cleaning or washing process and containing said concentrate on common membrane filtration units, especially ones using one or more reverse osmosis steps, without blocking the membrane or causing other damages.

[0010] Surprisingly, the underlying problem is solved by providing a paste-like, thixotropic, alkaline detergent or cleaning concentrate comprising based on the whole concentrate

a) 0,5 to 15 wt% of at least one first component selected from one or more compounds represented by the general formula (I),

$$R^1\text{-}(OC_2H_4)_n\text{-}(OC_3H_6)_m\text{-}OH \qquad (I)$$

wherein R^1 represents an unbranched or branched alkyl or alkenyl group having 4 to 8, preferably 5 to 7, carbon atoms, and wherein the sum of the average degree of ethoxylation n and propoxylation m ranges from 1 to 9, preferably from 3 to 7, with one of n and m optionally being 0, and

b) 5 to 90 wt% of at least one second component selected from one or more compounds represented by the general formula (II),

$$R^2\text{-}(OC_2H_4)_0\text{-}(OC_3H_6)_p\text{-}OH \qquad (II)$$

wherein R^2 represents an unbranched or branched alkyl or alkenyl group having 9 to 22, preferably 10 to 16, carbon atoms, and wherein the sum of the average degree of ethoxylation o and propoxylation p ranges from 1 to 9, preferably from 3 to 7, with one of o or p optionally being 0,

c) at least 1 wt% of at least one alkanolamine the cleaning concentrate exhibiting at 25°C a viscosity of from 80 000 mPas to 250 000 mPas at 5 revolutions per minute and a viscosity of from 20 000 mPas to 80 000 mPas at 50 revolutions per minute, each measured using a Brookfield rotational viscometer (spindle no. 7) under otherwise identical conditions.

[0011] In this context thixotropic means that the concentrate exhibits such a structural viscosity that it does not flow under the influence of gravity. However, on shear the viscosity tremendously decreases which enables the concentrate to flow under the influence of gravity. The dosing of thixotropic composition is then preferably performed by shearing the concentrate to reduce viscosity at first and afterwards dosing and transmitting the free-flow concentrate using for example a feed pump. The above mentioned viscosity values refer to reading after a detection time of 3 minutes to take the time dependency of the thixotropic effect into account. The decrease of viscosity on shear is to a great extent reversible, i. e. after having stopped the shear the concentrate will return to its original physical condition without separation.

[0012] It has to be taken into account that the viscosity may change while an equilibrium adjusts within the concentrate after its preparation. Accordingly, viscosity values measured during the manufacturing process or directly afterwards may falsify the result. Thus, the viscosities are determined after the equilibrium is adjusted and the final viscosity is reached. Storing for one month is generally sufficient to obtain reliable values.

[0013] In a preferred embodiment a mixture of two or more compounds represented by general formula II is used wherein R^2 is C10, C13 and/or C12-14, o is 3, 4 and/or 5 and p is 0 or 5. In these cases it is especially preferred to use at least one compound represented by the general formula I wherein R^1 is C6, n is 5 and m is 0.

[0014] The preferred amount of the compound(s) represented by the general formula (I) is in the range of from 1 to 10 wt.-% and most preferred from 2 to 5 wt.-% based on the whole concentrate.

[0015] The one or more compounds represented by the general formula (II) should be present in an amount of from 5 to 90 wt.-%, preferably from 15 to 70 wt.-% and most preferred from 20 to 50 wt.-% based on the whole concentrate.

[0016] The alkalinity may be achieved using any compound known in the state of the art which when dissolved in water shows an alkaline reaction, like for example alkali hydroxides, especially sodium or potassium hydroxide, ammoniumhydroxide, alkaline-earth hydroxides, alkali carbonates, like soda or mixtures thereof. The preferred alkalinity generating compound is represented by soda.

[0017] In a further preferred embodiment amorphous alkali silicate may be added as alkalinity source. Sodium meta silicate with a ratio of Na_2O: SiO_2 in the range of 1 : 0,8 to 1 : 1,3, preferably 1 : 1 is especially appropriate.

[0018] Moreover, one or more phosphates, can be used instead of or in addition to the amorphous alkali silicate. However, this should only be in case that the use of phosphates does not cause harm because of a phosphate eliminating waste water purification step following the cleaning or washing steps.

[0019] The phosphates are preferably selected from at least one of primary orthophosphates represented by the general formula $M^IH_2PO_4$ or $M^{II}(H_2PO_4)_2$, secondary orthophosphates represented by the general formula $M^I{}_2HPO_4$ or $M^{II}HPO_4$ or tertiary orthophosphates represented by the general formula $M^I{}_3PO_4$ or $M^{II}{}_3(PO_4)_2$, as well as condensed phosphates derived therefrom, the so called meta phosphates and poly phosphates, with M being a metal cation, M^I preferably being an alkali metal and M^{II} preferably being an alkaline-earth metal.

[0020] In one especially preferred embodiment the phosphate is a tripolyphosphate, preferably sodium tripolyphosphate ($Na_5P_3O_{10}$).

[0021] The content of the alkalinity source is chosen such that the pH value of a use solution containing the inventive concentrate should advantageously be in the range of from 9 to 13, preferably 10 to 12. Correspondingly, the total amount of the alkalinity source preferably ranges from 25 to 70 wt.-%, more preferably from 30 to 60 wt-% and most preferred from 50 to 58 wt.-%, based on the whole concentrate.

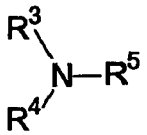
[0022] In preferred embodiments soda is used in amounts of from 15 to 60 wt.-%, preferably 25 to 55 wt.-%. The amount of amorphous alkali silicate, especially sodium meta silicate, with the above mentioned Na_2O : SiO_2 ratio, preferably ranges from 10 to 20 wt.-%, and especially is 15 wt.-%. The phosphor compound should be contained in an

amount of at most 40 wt.-%, preferably in an amount of 30 wt.-% or below, especially in a range of from 20 to 30 wt.-% based on the whole concentrate.

[0023] It is also possible to further add an alkaline compound in form of a solid or an aqueous solution when diluting the concentrate before use. However, it is most preferred to not add further alkaline compound when preparing the use solution from the inventive concentrate.

[0024] The inventive concentrate comprises at least 1 wt.-% based on the whole concentrate of at least one alkanolamine. Preferably the sum of alkanolamines contained in the concentrate is contained in an amount above 2 wt.-% and lies within the range of from 2 to 10 wt-%, and in particular from 3 to 5 wt.-%, based on the whole concentrate.

[0025] In a preferred embodiment at least one of the alkanolamines is represented by the general formula (III),



(III)

wherein R^3 represents a hydroxyalkyl group having 1 to 6 carbon atoms, and wherein R^4 and R^5 independent from each other are identical with R^3 or represent hydrogen. The most suitable alkanolamines are represented by mono-, di- or triethanolamine or mixtures thereof.

[0026] Those compounds may function as solutizer and thus improve the homogeneity of the inventive concentrate when diluted to form the use solution, for example the parent lye. Moreover, alkanolamines additionally represent an alkalinity source. As they are liquid they help to avoid the use of water to provide the paste-like concentrate.

[0027] The paste-like concentrate comprises a solid phase which is dispersed in a liquid phase as homogeneous as possible. The composition according to the present invention forming the above concentrate enables the water content to be reduced to an amount preferably of less than 3 wt.-%, more preferred less than 2 wt.-%, and most preferred less than 1 wt.-% based on the whole concentrate. Said water content is meant to refer to free water only. Additional water may be present in form of water of crystallisation or water of constitution. To improve the physical stability as well as the chemical stability the concentrate may additionally comprise dehydration agents, for example in form of salts which bind water of crystallisation like anhydrous sodium acetate, calcium sulfate, calcium chloride, sodium hydroxide, magnesium silicate or metal oxides like CaO, MgO, P_4O_{10} or Al_2O_3 or mixtures thereof.

[0028] The concentrate may additionally contain at least one alkyl polyglucoside having from 8 to 14 carbon atoms in the alkyl group and from 1 to 5 glucose moieties. The amount of the alkyl polyglucosid should be in the range of from 1 to 6 wt.%, preferably from 1,5 to 3 wt.%.

[0029] Such compounds have a strongly hydrophobic alkyl moiety and a strongly hydrophilic glucosid moiety and, accordingly, are very much appropriate to function as stabilizer of the paste-like concentrate.

[0030] Additionally, the concentrate may comprise one or more further additives generally used in cleaning agents or detergents like further soil release agents, cobuilders, optical brighteners, dyes and fragrances, small quantities of neutral salts such as sulfates and chlorides in the form of their sodium or potassium salts, provided that these do not impair the positive properties. Other suitable additives to the product may be enzymes, foam regulators, redeposition inhibitors, soil release agents, bleaching agents from the class of per compounds, which are conventionally used together with activators, active chlorine compounds as well as dyes, dye transfer inhibitors or dye intensifiers and fragrances.

[0031] When preparing the inventive concentrate for practical reasons the liquid components should be pre-mixed before the solid components and further ingredients are incorporated. In case that the particulate solids are not fine enough to provide a homogeneous, paste-like concentrate, they may be grinded one or more times before incorporation.

[0032] The inventive concentrate as described above can be used to prepare a stable parent lye. Especially for usage in laundry applications the parent lye contains the inventive concentrate in amounts of from 0,5 to 25 wt.-%, preferably 5 to 15 wt.-% based on the detergent solution. Generally, the concentrate is dissolved in pure water to form the parent lye. However, it is also possible to use water in which further additives, like hydrophilic auxiliaries, are dissolved.

[0033] Although the main emphasis for the usage of the concentrate or the solution containing the inventive concentrate, respectively, is on laundry detergents, it may as well be applied as cleaning agent in warewashing, clean in place cleaners and sanitizers, food an dairy formulations and other applications in which such alkaline cleaning solutions may be applied. Preferably, the solution containing the concentrate is used as parent lye for the industrial machine cleaning of textiles.

[0034] Moreover, the present invention provides a method for washing textiles comprising one step in which a parent lye is prepared by diluting the concentrate according to claims 1 to 12 such that the parent lye contains the concentrate in an amount of from 0,5 to 25 wt.-%, preferably of from 5 to 15 wt.-% based on the detergent solution.

[0035] The concentrate according to the invention is metered from a storage reservoir using a metering equipment

which is suitable to meter paste-like substances by influence of shearing force. An appropriate equipment is described for example in WO 95/09263. The required amount of the concentrate which then is free-flow is transmitted into a further tank in which it is combined and dissolved with the appropriate amount of solvent, which generally is water and may as well contain further additives or auxiliaries.

[0036] To accelerate the blending the mixture is advantageously agitated. The resulting parent lye may than either directly be distributed to the single washing machines or stored for usage in washing cycles to be performed later. Preferably, the parent lye is shortly agitated after having been stored before it is distributed to the single washing machines to guarantee a homogeneous distribution of the active agent in the parent lye. When transmitted to the single washing machines the parent lye may be further diluted depending on the desired detergent concentration.

[0037] It is also possible to pre-portion the paste-like concentrate, for example to wrap it in foil bags. Since the concentrate essentially does not contain water the concentrate may be wrapped in foils which are water soluble. In this case when preparing the parent lye the required number of foil bags is poured into a tank, the appropriate amount of water is added and after the foils are dissolved by the water the parent lye may be obtained by stir ring.

[0038] A further advantage resulting from the composition of the concentrate is that it allows the purification of the waste water which is accumulated during the cleaning or washing process using common membrane filtration units without blocking them or causing other damages. The membrane filtration may as well comprise at least one ultra filtration and/or reverse osmosis step. Said purification processes succeed best with a concentrate according to the invention which contains one or more phosphates.

Examples

[0039] The following table presents examples for appropriate compositions (C1 to C10) for the inventive concentrate. The cited values refer to wt.-%, based on the whole concentrate. The paste-like concentrates exhibited good storage stabilities, i. e. they did not separate over a period of at least 12 months, provided stable parent lyes when being stirred and optionally warmed up to 30-40°C, i. e. they essentially did not separate over a period of at least 1 week, when diluted in water in an amount such that the content of the concentrate was 10 wt.-% based on the parent lye. Generally, slightly stirring was sufficient to obtain a stable parent lye. Moreover, the concentrate when used as a 10 wt.-% aqueous parent lye exhibited excellent cleaning properties. Especially when applying the concentrates in examples C3, C6, C7 and C9 the waste water accumulated during the washing process could be purified by membrane filtration even using ultra filtration steps.

Table 1: Composition of paste-like concentrates which are suitable to form stable (non separating) alkaline cleaning and detergent solutions

Component	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**
Fatty alcohol ethoxylate, C12-14, 5 EO		10									
Fatty alcohol ethoxylate and -propoxylate, C12-14, 5 EO, 4 PO		5				12		5			12
Fatty alcohol ethoxylate, C13, 5 EO			11		5						
Fatty alcohol ethoxylate, C13, 7 EO	14,5			9,5			11	14,5		14	
Guerbet alcohol ethoxylate, C10, 5 EO	5	5	10	5	5	12	6	5	12	5	12
Fatty alcohol alkoxylate				5	9,5		5		12	5	
Isolauryl alcohol	3	3	3	3	3	3	3	3	3	3	3
Fatty alcohol ethoxylate, C6, 5 EO	1,5	2	1	1,5	2	1	2	1,5	1	2	
Foam regulating agents	3	3	3	3	3	3	3	3	3	3	
Anorganic surfactants	2	2	2	2	2	1,5	1,5	1,5	1,5	1,5	3,5
Triethanol amine	3	4	3	3	2,5	3	5	3	3	3	3
Optical brightners	1	1	1	1	1			1	1	1	
Organic builders	10,15	10,15	10,15	10,15	10,15	7,2	7,2	10,55	7,2	10,55	7,2
Graying inhibitors	1	1	1	1	1						
Na-metasilicate	15	15	15	15							
Na-carbonate	40,85	38,85	18,2	40,85	35,85	27,3	26,3	51,95	26,3	31,95	30,3
Tripolyphosphate- Na, $Na_5P_3O_{10}$			26			30	30		30		28
Ethylenediaminetetraacetic acid					6					6	
Perborate monohydrate-Na					14					14	
	C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**

EO = $-(OC_2H_4)-$, PO = $-(OC_3H_6)-$

Claims

1. Paste-like, thixotropic, alkaline detergent or cleaning concentrate comprising based on the whole concentrate

a) 0,5 to 15 wt-% of at least one first component selected from one or more compounds represented by the general formula (I),

$$R^1\text{-}(OC_2H_4)_n\text{-}(OC_3H_6)_m\text{-}OH \qquad (I)$$

wherein R^1 represents an unbranched or branched alkyl or alkenyl group having 4 to 8, preferably 5 to 7, carbon atoms, and wherein the sum of the average degree of ethoxylation n and propoxylation m ranges from 1 to 9, preferably from 3 to 7, with one of n and m optionally being 0, and
b) 5 to 90 wt-% of at least one second component selected from one or more compounds represented by the general formula (II),

$$R^2\text{-}(OC_2H_4)_0\text{-}(OC_3H_6)_p\text{-}OH \qquad (II)$$

wherein R^2 represents an unbranched or branched alkyl or alkenyl group having 9 to 22, preferably 10 to 16, carbon atoms, and wherein the sum of the average degree of ethoxylation o and propoxylation p ranges from 1 to 9, preferably from 3 to 7, with one of o or p optionally being 0,
c) at least 1 wt.-% of at least one alkanolamine,

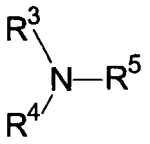
the cleaning concentrate exhibiting at 25°C a viscosity of from 80 000 mPas to 250 000 mPas at 5 revolutions per minute and a viscosity of from 20 000 mPas to 80 000 mPas at 50 revolutions per minute, each measured using a Brookfield rotational viscometer (spindle no. 7) under otherwise identical conditions.

2. Concentrate according to claim 1, **characterized in that** component a) is contained in an amount of from 1 to 10 wt.-% based on the whole concentrate.

3. Concentrate according to claims 1 or 2, **characterized in that** component b) is contained in an amount of from 15 to 70 wt.-% based on the whole concentrate.

4. Concentrate according to claim 1, **characterized in that** the sum of alkanolamines contained in the concentrate is in the range of from 2 to 10 wt.-%, preferably of from 3 to 5 wt.-% based on the whole concentrate.

5. Concentrate according to claims 1 or 4, **characterized in that** at least one of the alkanolamines is represented by the general formula (III),



(III)

wherein R^3 represents a hydroxyalkyl group having 1 to 6 carbon atoms, and wherein R^4 and R^5 independent from each other are identical with R^3 or represent hydrogen.

6. Concentrate according to claims 1, 4 ,5 , **characterized in that** the concentrate comprises mono-, di- or triethanolamine or mixtures thereof.

7. Concentrate according to claims 1 to 6, **characterized in that** the concentrate comprises one or more phosphates.

8. Concentrate according to claim 7, **characterized in that** the phosphates are selected from at least one of primary orthophosphates represented by the general formula $M^I H_2PO_4$ or $M^{II}(H_2PO_4)_2$, secondary orthophosphates represented by the general formula $M^I{}_2HPO_4$ or $M^{II}HPO_4$ or tertiary orthophosphates represented by the general formula $M^I{}_3PO_4$ or $M^{II}{}_3(PO_4)_2$, as well as condensed phosphates derived therefrom, the so called meta phosphates and

poly phosphates, with M being a metal cation , M' preferably being an alkali metal and M" preferably being an alkaline-earth metal.

9. Concentrate according to claims 7 or 8, **characterized in that** the phosphate is a tripolyphosphate, preferably sodium tripolyphosphate ($Na_5P_3O_{10}$).

10. Concentrate according to claims 7 to 9, **characterized in that** the one or more phosphates are contained in an amount of at most 40 wt.-%, preferably in an amount of 30 wt.-% or below based on the whole concentrate.

11. Concentrate according to claims 1 to 10, **characterized in that** the concentrate additionally contains at least one alkyl polyglucosides having from 8 to 14 carbon atoms in the alkyl group and from 1 to 5 glucose moieties.

12. Concentrate according to claims 1 to 11, **characterized in that** the concentrate contains less than 3 wt.-%, preferably less than 2 wt.-% water based on the whole concentrate.

13. Use of the concentrate according to claims 1 to 12for the preparation of a stable parent lye.

14. Stable parent lye containing the concentrate according to claims 1 to 11 in an amount of from 0,5 to 25 wt.-%, preferably from 5 to 15 wt.-% based on the whole parent lye.

15. Use of the parent lye according to claims 13 and 14 as a cleansing agent or a detergent, preferably for the machine cleaning of textiles.

16. Method for washing textiles comprising one step in which a parent lye is prepared by diluting the concentrate according to claims 1 to 12 such that the parent lye contains the concentrate in an amount of from 0,5 to 25 wt.-%, preferably of from 5 to 15 wt.-% based on the parent lye.

17. Method according to claim 16, **characterized in that** the waste water accumulated during the whole washing process or parts thereof is purified using a membrane filtration unit.

18. Method according to claim 17, **characterized in that** the membrane filtration process comprises at least one ultrafiltration and/or reverse osmosis step.

Patentansprüche

1. Pastenartiges thixotropes alkalisches Waschmittel- oder Reinigungskonzentrat, das bezogen auf das gesamte Konzentrat

a) 0,5 bis 15 Gew.-% wenigstens einer ersten Komponente, die ausgewählt ist aus einer oder mehreren Verbindungen, dargestellt durch die allgemeine Formel (I):

$$R^1\text{-}(OC_2H_4)_n\text{-}(OC_3H_6)_m\text{-}OH \qquad (I)$$

worin R^1 eine unverzweigte oder verzweigte Alkyl- oder AlkenylGruppe mit 4 bis 8, vorzugsweise 5 bis 7 Kohlenstoff-Atomen bedeutet und die Summe des mittleren Ethoxylierungsgrads n und Propoxylierungsgrads m im Bereich von 1 bis 9, vorzugsweise 3 bis 7 liegt, wobei eines der n und m gegebenenfalls 0 ist, und
b) 5 bis 90 Gew.-% wenigstens einer zweiten Komponente, die ausgewählt ist aus einer oder mehreren Verbindungen, dargestellt durch die allgemeine Formel (II):

$$R^2\text{-}(OC_2H_4)_o\text{-}(OC_3H_6)_p\text{-}OH \qquad (II)$$

worin R^2 eine unverzweigte oder verzweigte Alkyl- oder AlkenylGruppe mit 9 bis 22, vorzugsweise 10 bis 16 Kohlenstoff-Atomen bedeutet und die Summe des mittleren Ethoxylierungsgrads o und Propoxylierungsgrads p im Bereich von 1 bis 9, vorzugsweise 3 bis 7 liegt, wobei eines der o oder p gegebenenfalls 0 ist,
c) wenigstens 1 Gew.-% wenigstens eines Alkanolamins umfasst,

wobei das Reinigungskonzentrat bei 25°C eine Viskosität von 80 000 mPas bis 250 000 mPas bei 5 Umdrehungen

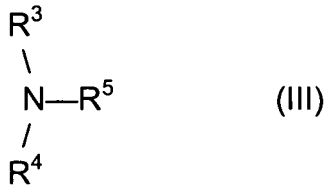
pro Minute und eine Viskosität von 20 000 mPas bis 80 000 mPas bei 50 Umdrehungen pro Minute aufweist, jeweils gemessen unter Einsatz eines Brookfield-Rotationsviskosimeters (Spindel Nr. 7) unter ansonsten gleichen Bedingungen.

2. Konzentrat nach Anspruch 1, **dadurch gekennzeichnet, dass** die Komponente a), bezogen auf das gesamte Konzentrat, in einer Menge von 1 bis 10 Gew.-% enthalten ist.

3. Konzentrat nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Komponente b), bezogen auf das gesamte Konzentrat, in einer Menge von 15 bis 70 Gew.-% enthalten ist.

4. Konzentrat nach Anspruch 1, **dadurch gekennzeichnet, dass** die Summe der im Konzentrat enthaltenen Alkanolamine, bezogen auf das gesamte Konzentrat, im Bereich von 2 bis 10 Gew.-%, vorzugsweise 3 bis 5 Gew.-% liegt.

5. Konzentrat nach Anspruch 1 oder 4, **dadurch gekennzeichnet, dass** wenigstens eines der Alkanolamine dargestellt wird durch die allgemeine Formel (III):



(III)

worin R^3 eine Hydroxyalkyl-Gruppe mit 1 bis 6 Kohlenstoff-Atomen bedeutet und R^4 und R^5 unabhängig voneinander identisch mit R^3 sind oder für Wasserstoff stehen.

6. Konzentrat nach den Ansprüchen 1, 4, 5, **dadurch gekennzeichnet, dass** das Konzentrat Mono-, Di- oder Triethanolamin oder Mischungen derselben umfasst.

7. Konzentrat nach den Ansprüchen 1 bis 6, **dadurch gekennzeichnet, dass** das Konzentrat ein oder mehrere Phosphate umfasst.

8. Konzentrat nach Anspruch 7, **dadurch gekennzeichnet, dass** die Phosphate ausgewählt sind aus wenigstens einem der primären Orthophosphate, dargestellt durch die allgemeine Formel $M^{I}H_2PO_4$ oder $M^{II}(H_2PO_4)_2$, sekundären Orthophosphate, dargestellt durch die allgemeine Formel $M^{I}_2HPO_4$ oder $M^{II}HPO_4$, oder tertiären Orthophosphate, dargestellt durch die allgemeine Formel $M^{I}_3PO_4$ oder $M^{II}_3(PO_4)_2$, sowie der davon abgeleiteten kondensierten Phosphate, die sogenannten Metaphosphate und Polyphosphate, wobei M ein Metallkation ist, M^{I} vorzugsweise ein Alkalimetall und M" vorzugsweise ein Erdalkalimetall ist.

9. Konzentrat nach Anspruch 7 oder 8, **dadurch gekennzeichnet, dass** das Phosphat ein Tripolyphosphat, vorzugsweise Natriumtripolyphosphat ($Na_5P_3O_{10}$) ist.

10. Konzentrat nach den Ansprüchen 7 bis 9, **dadurch gekennzeichnet, dass** das eine oder die mehreren Phosphate, bezogen auf das gesamte Konzentrat, in einer Menge von höchstens 40 Gew.-%, vorzugsweise in einer Menge von 30 Gew.-% oder darunter enthalten ist/sind.

11. Konzentrat nach den Ansprüchen 1 bis 10, **dadurch gekennzeichnet, dass** das Konzentrat zusätzlich wenigstens eines der Alkylpolyglucoside mit 8 bis 14 Kohlenstoff-Atomen in der Alkyl-Gruppe und 1 bis 5 Glucose-Einheiten enthält.

12. Konzentrat nach den Ansprüchen 1 bis 11, **dadurch gekennzeichnet, dass** das Konzentrat, bezogen auf das gesamte Konzentrat, weniger als 3 Gew.-%, vorzugsweise weniger als 2 Gew.-% Wasser enthält.

13. Verwendung des Konzentrats nach den Ansprüchen 1 bis 12 zur Herstellung einer stabilen Stammlauge.

14. Stabile Stammlauge, enthaltend das Konzentrat nach den Ansprüchen 1 bis 11 in einer Menge von 0,5 bis 25 Gew.-

%, vorzugsweise 5 bis 15 Gew.-%, bezogen auf die gesamte Stammlauge.

15. Verwendung der Stammlauge nach den Ansprüchen 13 und 14 als Reinigungsmittel oder Waschmittel, vorzugsweise zur maschinellen Reinigung von Textilien.

16. Verfahren zum Waschen von Textilien, umfassend einen Schritt, bei dem eine Stammlauge hergestellt wird durch Verdünnen des Konzentrats nach den Ansprüchen 1 bis 12, so dass die Stammlauge das Konzentrat in einer Menge von 0,5 bis 25 Gew.-%, vorzugsweise 5 bis 15 Gew.-% bezogen auf die Stammlauge enthält.

17. Verfahren nach Anspruch 16, **dadurch gekennzeichnet, dass** das während des gesamten Waschvorgangs angesammelte Abwasser oder ein Teil desselben unter Einsatz einer Membranfiltrationseinheit gereinigt wird.

18. Verfahren nach Anspruch 17, **dadurch gekennzeichnet, dass** der Membranfiltrationsprozess wenigstens einen Ultrafiltrations- und/oder Umkehrosmose-Schritt umfasst.

Revendications

1. Concentré détergent ou nettoyant, alcalin et thixotropique, ayant la consistance d'une pâte, comprenant, par rapport au concentré total,

a) de 0,5 à 15 % en poids d'au moins un premier composant choisi parmi un ou plusieurs composés représentés par la formule générale (I)

$$R^1\text{-}(OC_2H_4)_n\text{-}(OC_3H_6)_m\text{-}OH \qquad (I)$$

dans laquelle R^1 représente un groupe alkyle ou alcényle ramifié ou non ayant de 4 à 8, de préférence de 5 à 7 atomes de carbone, et dans laquelle la somme du degré moyen d'éthoxylation n et de propoxylation m est comprise dans la plage allant de 1 à 9, de préférence de 3 à 7, un de n et m étant facultativement égal à 0, et
b) de 5 à 90 % en poids d'au moins un deuxième composant choisi parmi un ou plusieurs composés représentés par la formule générale (II)

$$R^2\text{-}(OC_2H_4)_0\text{-}(OC_3H_6)_p\text{-}OH \qquad (II)$$

dans laquelle R^2 représente un groupe alkyle ou alcényle ramifié ou non ayant de 9 à 22, de préférence de 10 à 16 atomes de carbone, et dans laquelle la somme du degré moyen d'éthoxylation o et de propoxylation p est comprise dans la plage allant de 1 à 9, de préférence de 3 à 7, un de o et p étant facultativement égal à 0,
c) au moins 1 % en poids d'au moins une alcanolamine,

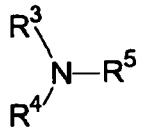
le concentré nettoyant présentant à 25°C une viscosité de 80 000 mPa.s à 250 000 mPa.s à 5 tours par minute et une viscosité de 20 000 mPa.s à 80 000 mPa.s à 50 tours par minute, chacune mesurée en utilisant un viscosimètre rotatif de Brookfield (mobile n° 7) dans des conditions sinon identiques.

2. Concentré selon la revendication 1, **caractérisé en ce que** le composant a) est contenu en une quantité de 1 à 10 % en poids, par rapport au concentré total.

3. Concentré selon la revendication 1 ou 2, **caractérisé en ce que** le composant b) est contenu en une quantité de 15 à 70 % en poids, par rapport au concentré total.

4. Concentré selon la revendication 1, **caractérisé en ce que** la somme des alcanolamines contenues dans le concentré est comprise dans la plage allant de 2 à 10 % en poids, de préférence de 3 à 5 % en poids, par rapport au concentré total.

5. Concentré selon la revendication 1 ou 4, **caractérisé en ce qu'**au moins une des alcanolamines est représentée par la formule générale (III)



(III)

dans laquelle R^3 représente un groupe hydroxyalkyle ayant de 1 à 6 atomes de carbone, et dans laquelle R^4 et R^5, indépendamment l'un de l'autre, sont identiques à R^3 ou représentent un atome d'hydrogène.

6. Concentré selon l'une quelconque des revendications 1, 4 et 5, **caractérisé en ce que** le concentré comprend une mono-, di- ou triéthanolamine ou des mélanges de celles-ci.

7. Concentré selon l'une quelconque des revendications 1 à 6, **caractérisé en ce que** le concentré comprend un ou plusieurs phosphates.

8. Concentré selon la revendication 7, **caractérisé en ce que** les phosphates sont choisis parmi au moins un des orthophosphates primaires représentés par la formule générale $M^I H_2PO_4$ ou $M^{II}(H_2PO_4)_2$, des orthophosphates secondaires représentés par la formule générale $M^I{}_2HPO_4$ ou $M^{II}HPO_4$, ou des orthophosphates tertiaires représentés par la formule générale $M^I{}_3PO_4$ ou $M^{II}{}_3\ (PO_4)_2$, ainsi que les phosphates condensés dérivés de ceux-ci, nommés métaphosphates et polyphosphates, M étant un cation métallique, M^I étant de préférence un métal alcalin et M^{II} étant de préférence un métal alcalino-terreux.

9. Concentré selon la revendication 7 ou 8, **caractérisé en ce que** le phosphate est un tripolyphosphate, de préférence un tripolyphosphate de sodium ($Na_5P_3O_{10}$).

10. Concentré selon l'une quelconque des revendications 7 à 9, **caractérisé en ce que** le ou les phosphates sont contenus en une quantité d'au plus 40 % en poids, de préférence en une quantité de 30 % en poids ou moins, par rapport au concentré total.

11. Concentré selon l'une quelconque des revendications 1 à 10, **caractérisé en ce que** le concentré contient en plus au moins un alkylpolyglucoside ayant de 8 à 14 atomes de carbone dans le groupe alkyle et de 1 à 5 fragments glucoses.

12. Concentré selon l'une quelconque des revendications 1 à 11, **caractérisé en ce que** le concentré contient moins de 3 % en poids, de préférence moins de 2 % en poids d'eau, par rapport au concentré total.

13. Utilisation du concentré selon l'une quelconque des revendications 1 à 12, pour la préparation d'une lessive antériologue stable.

14. Lessive antériologue stable contenant le concentré selon l'une quelconque des revendications 1 à 11 en une quantité de 0,5 à 25 % en poids, de préférence de 5 à 15 % en poids, par rapport à la lessive antériologue totale.

15. Utilisation de la lessive antériologue selon les revendications 13 et 14, en tant qu'agent nettoyant ou détergent, de préférence pour le nettoyage en machine de textiles.

16. Procédé de lavage de textiles comprenant une étape dans laquelle une lessive antériologue est préparée en diluant le concentré selon l'une quelconque des revendications 1 à 12 de sorte que la lessive antériologue contienne le concentré en une quantité de 0,5 à 25 % en poids, de préférence de 5 à 15 % en poids, par rapport à la lessive antériologue.

17. Procédé selon la revendication 16, **caractérisé en ce que** les eaux usées accumulées pendant le procédé de lavage global ou des parties de celui-ci soient purifiées en utilisant une unité de filtration sur membrane.

18. Procédé selon la revendication 17, **caractérisé en ce que** le procédé de filtration sur membrane comprend au moins une étape d'ultrafiltration et/ou d'osmose inverse.

REFERENCES CITED IN THE DESCRIPTION

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