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Section 29

AUSTRALIA

Patents Act 1990

PATENT REQUEST : STANDARD PATENT

I/We, being the person/s identified below as the Applicant, request the grant of a patent to the person/s indicated below as the Nominated Person/s, for an invention described in the accompanying standard complete specification.

Full application details follow.

[71] [70] Applicant/s and Nominated Person/s:
Clariant GmbH,
of Bruningstrasse 50, D-65929 Frankfurt am Main, GERMANY

[54] Invention Title:
Detergents, cleaning compositions and disinfectants comprising chlorine-active substances and fattyacid alkyl ester ethoxylates

[72] Name/s of actual inventor/s: (optional)

[74] Address for service in Australia:
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BASIC CONVENTION APPLICATION/S DETAILS:

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[33] Country:
GERMANY

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Clariant GmbH
By Patent Attorneys
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Fee: \$ 280.00





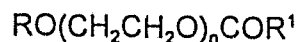
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(12) PATENT ABSTRACT (11) Document No. AU-A-94119/98
(19) AUSTRALIAN PATENT OFFICE

- (54) Title
DETERGENTS, CLEANING COMPOSITIONS AND DISINFECTANTS COMPRISING CHLORINE
-ACTIVE SUBSTANCES AND FATTYACID ALKYL ESTER ETHOXYLATES
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- (57)

Detergents, cleaning compositions and disinfectants comprising chlorine-active substances and fatty acid alkyl ester ethoxylates

Detergents, cleaning compositions and disinfectants comprising a chlorine-active substance and a fatty acid alkyl ester ethoxylate of the formula



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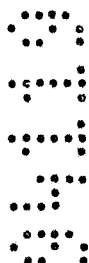
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Regulation 3:2

AUSTRALIA

Patents Act 1990

ORIGINAL
COMPLETE SPECIFICATION
STANDARD PATENT



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Invention Title:

Detergents, cleaning compositions and disinfectants comprising
chlorine-active substances and fattyacid alkyl ester ethoxylates

The following statement is a full description of this invention, including the best method of
performing it known to me:-

Description

- 5 Detergents, cleaning compositions and disinfectants comprising chlorine-active substances and fatty acid alkyl ester ethoxylates

10 In America, Japan and other regions where washing machines do not generally have active heating systems, chlorine-active substances, in particular sodium hypochlorite, are used for bleaching and disinfecting. The sodium hypochlorite solution displays its full bleaching effect at temperatures as low as 20°C. Effective oxidizing agents here may, firstly, be the hypochlorous acid and its anion, or, secondly, the atomic oxygen formed during degradation of the acids. A disadvantage is that sodium hypochlorite solutions are incompatible with many other detergent ingredients, meaning that the bleaching agent must be added separately.

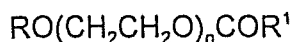
15 This is true particularly in the case of nonionic surfactants. Thus, the hydroxyl groups of fatty alcohol ethoxylates, for example, are already oxidized at temperatures of 40°C and above within a short time in the presence of hypochlorite.

20 EP Patent 636690 describes a gelatinous cleaning composition comprising hypochlorite and an acrylic polymer for stabilizing the surfactants. The stabilization of cleaning compositions comprising hypochlorite using water-soluble sulfo polymers is described in GB-A-227119.

25 The object of the invention was to provide nonionic surfactants which are stable toward hypochlorite, are readily biodegradable and well tolerated by the skin. This object is achieved by the use of the fatty acid alkyl ester ethoxylates described below.

30 The invention provides detergents, cleaning compositions and disinfectants which, in addition to the chlorine-active substance, comprise a fatty acid alkyl ester ethoxylate

of the formula



where R is $\text{C}_1\text{-C}_4$ -alkyl, R^1 is $\text{C}_5\text{-C}_{22}$ -alkyl or $\text{C}_5\text{-C}_{22}$ -alkenyl, and n is a number from 1 to 30.

These fatty acid alkyl ester ethoxylates are prepared by known processes by reacting ethylene oxide and the fatty acid ester in the presence of a catalyst (US-A-4 022 808; DE-A-9151080, DE-A-30 08 174; EP-A-335 295;

US-A-5 374 750). Preferred fatty acid alkyl esters are the methyl esters, and preferred parent fatty acids are saturated and unsaturated $\text{C}_{12}\text{-C}_{18}$ -fatty acids, in particular the naturally occurring fatty acids or fatty acid mixtures, such as lauric, stearic or oleic acid, or tallow fatty acid or coconut fatty acid.

The detergents, cleaning compositions and disinfectants according to the invention, which may be solid or liquid, generally comprise from 0.1 to 15% by weight, preferably from 0.2 to 10% by weight, in particular from 2 to 6% by weight, of the chlorine-active substance. The most important of these chlorine-active substances are the hypochlorites, in particular sodium hypochlorite. Other chlorine-active substances are dichloroisocyanurates, trichlorocyanuric acid, N-chlorinated succinimides, malonimides, phthalimides or naphthalimides, dichlorodimethylhydantoin, N-chlorosulfonamide and chloramines. The amount of fatty acid alkyl ester ethoxylate in the detergents, cleaning compositions and disinfectants according to the invention is from 0.2 to 20% by weight, preferably from 0.5 to 10% by weight, in particular from 0.3 to 5% by weight. It has proven advantageous to use the fatty acid alkyl ester ethoxylates together with secondary alkanesulfonates (SAS). This combination also improves the stability of the hypochlorite-surfactant system. These sec. alkanesulfonates are used in amounts such that the weight ratio of fatty acid alkyl ester ethoxylate to alkanesulfonate is from 4:1 to 1:4, preferably from 2:1 to 1:2, in particular 1:1.

Depending on the intended use, the detergents, cleaning compositions and disinfectants according to the invention may also comprise other anionic, nonionic, cationic and/or amphoteric cosurfactants, provided that these cosurfactants are not attacked by the chlorine-active substance.

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Typical examples of such cosurfactants are amine oxides, betaines, sarcosinates, taurates, alkylsulfates, alkylsulfonates, alkylarylsulfonates, alkylphenol ether sulfates, phosphoric acid alkyl esters, sulfoxides, phosphorus oxides, alkyl diphenyl oxide sulfonates and soaps.

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The detergents, cleaning compositions and disinfectants according to the invention are, for example, detergents, disinfectants, disinfecting cleaning compositions, all-purpose cleaners, sanitary cleaners, bath cleaners and automatic dishwashing detergents. Depending on the intended use, in addition to said surfactants, they may also comprise the specific auxiliaries and additives in each case, for example builders, foam inhibitors, salts, bleaching agents, bleach activators, optical brighteners, antiredeposition agents, solubilizers, enzymes, thickeners, preservatives, perfumes and dyes, pearling agents, emulsifiers, superfatting agents, biogenic active ingredients (plant extracts and vitamin complexes), and sequestering agents.

20

Examples

Example 1: Cleaner comprising sodium hypochlorite, clear, liquid

25	Composition (% by weight)	100%
	Deionized water	ad 100 %
	Fatty acid alkyl ester ethoxylate (Clariant)	0.90
	Hostapur® SAS 30 (Clariant)	1.50
	Sodium hydroxide	1.00
30	Sodium hypochlorite (15% strength)	3.75
	Perfume oil	

Example 2

Sanitary cleaner containing sodium hypochlorite, cloudy, liquid

5	Composition (% by weight)	100 %
	Deionized water	ad 100 %
	Fatty acid alkyl ester ethoxylate (Clariant)	1.00
	Hostapur SAS 30 (Clariant)	0.75
	Sodium hydroxide	1.00
10	Sodium hypochlorite (15% strength)	7.50

Preparation:

The components are stirred together well in the order given.

15 Chemical name of the commercial products:

Hostapur SAS 30: secondary C_{13} - C_{17} -alkanesulfonate, sodium salt

20 Fatty acid alkyl ester ethoxylate: C_8 - C_{10} -alkyl fatty acid methyl ester ethoxylate
containing 9 mol of EO

Determination of the stability of sodium hypochlorite in combination with surfactants

25 In accordance with the ASTM D2022 method, the chloride content of an aqueous solution comprising 1% surfactant, 4.5% $NaClO_2$ and 0.3% $NaOH$ was measured. The samples were stored at 40°C, and the chloride content was measured in each case after 10, 20, 30 and 70 days. The results are given in the table below.

Surfactant					
Days	1	2	3	4	5
10	68	88	92	88	95
20	0	72	80	80	80
30	0	60	70	73	72
70	0	0	0	60	58

The following surfactants or surfactant mixtures were tested:

1. C_{11} -oxo alcohol polyglycol ether containing 7 mol of EO
2. C_6/C_{10} -alkyl fatty acid methyl ester ethoxylate containing 9 mol of EO
3. C_{12}/C_{14} -alkyl fatty acid methyl ester ethoxylate containing 12.5 mol of EO
4. sec. alkanesulfonate, Na salt
5. 1:1 mixture of C_6/C_{10} -alkyl fatty acid methyl ester ethoxylate containing 9 mol of EO and sec. alkanesulfonate

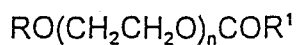
The values given in the table indicate the active chlorine content in %, based on the starting value.

This table shows that the fatty acid methyl ester ethoxylate alone or together with a sec. alkanesulfonate ensures sufficiently long stability in a mixture with hypochlorite.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", or variations such as "comprises" or "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

The claims defining the invention are as follows:

1. A detergent, cleaning composition or disinfectant comprising a chlorine-active substance and a fatty acid alkyl ester ethoxylate of the formula



in which R is C₁-C₄-alkyl, R¹ is C₅-C₂₂-alkyl or C₅-C₂₂-alkenyl, and n is a number from 1 to 30.

2. A detergent, cleaning composition or disinfectant as claimed in claim 1, which comprises from 0.2 to 20% by weight, preferably from 0.5 to 10% by weight, of the fatty acid alkyl ester ethoxylate.

3. A detergent, cleaning composition or disinfectant as claimed in claim 1, which comprises a mixture of fatty acid alkyl ester ethoxylate and secondary alkanesulfonate.

4. A detergent, cleaning composition or disinfectant according to Claim 1, substantially as hereinbefore described with reference to the Examples.

DATED this 23rd day of November 1998

CLARIANT GMBH

By its Patent Attorneys

DAVIES COLLISON CAVE

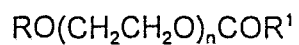
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Abstract

Detergents, cleaning compositions and disinfectants comprising chlorine-active substances and fatty acid alkyl ester ethoxylates

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Detergents, cleaning compositions and disinfectants comprising a chlorine-active substance and a fatty acid alkyl ester ethoxylate of the formula



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