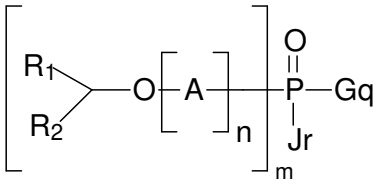
used, the catalyst of dimetal cyanide type, known as a DMC catalyst. Various documents mention the alkoxylation of various compounds, including alcohols, by basic catalysis and/or by DMC catalysis.

[0011] Thus, a phosphate ester of a secondary alcohol is sought, said alcohol being short-chained and alkoxylated, the alkoxylation of which is performed via a simple process that allows low-cost industrial and commercial development. It would also be advantageous to develop a process for preparing these phosphate esters using alkoxylated secondary alcohols, the starting compound of which is a biobased and biodegradable reagent.

[0012] One object of the present disclosure is to propose a solution for resolving the problems mentioned above.

[0013] There is provided a compound of formula (I) below, and also the addition salts thereof with an organic or mineral base, the solvates, such as hydrates, and mixtures thereof:



(I),

in which:

- the groups R_1 and R_2, which may be identical or different, represent, independently of each other, a linear, branched or cyclic, saturated or unsaturated hydrocarbon-based group, comprising from 1 to 6 carbon atoms, it being understood that the sum of the carbon atoms of the groups R_1 and R_2 ranges from 2 to 7, R_1 and R_2 may form, together with the carbon atom that bears them, a 6-, 7- or 8-membered ring,
- n is an integer between, limits inclusive, 1 and 100, preferably between 2 and 100, more preferably between 3 and 100, more particularly between 5 and 100 and very preferably between 10 and 100,
- A represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof,
- G denotes the group -O-[B]p-R_5,

in which R_5 represents a group chosen from a hydrogen atom or a linear, branched or cyclic, saturated or unsaturated hydrocarbon-based group, comprising from 1 to 30 carbon atoms, B represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof, and p denotes an integer ranging from 0 to 100,

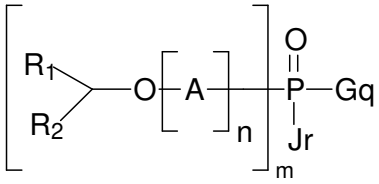
- J denotes the group –O-[E]$_s$-R$_6$,

in which R$_6$ represents a group chosen from a hydrogen atom or a linear, branched or cyclic, saturated or unsaturated hydrocarbon-based group, comprising from 1 to 30 carbon atoms, E represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof, and s denotes an integer ranging from 0 to 100,

- m denotes an integer ranging from 1 to 3,
- q and r denote integers ranging from 0 to 2,

it being understood that m + q + r = 3.

[0013a] In an aspect, there is provided a compound of formula (I) below, and also the addition salts thereof with an organic or mineral base, the solvates, and mixtures thereof:



(I),

in which:

- the group formed by R$_1$, R$_2$ and the carbon atom to which R$_1$ and R$_2$ are attached is chosen from the 2-octyl radical and the 4-methyl-2-pentyl radical, more particularly the 2-octyl radical,
- n is an integer between, limits inclusive, 1 and 100, preferably between 2 and 100, more preferably between 3 and 100, more particularly between 5 and 100 and very preferably between 10 and 100,
- A represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof,
- G denotes the group -O-[B]$_p$-R$_5$,

in which R$_5$ represents a group chosen from a hydrogen atom or a linear, branched or cyclic, saturated or unsaturated hydrocarbon-based group, comprising from 1 to 30 carbon atoms, B represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof, and p denotes an integer ranging from 0 to 100,

- J denotes the group –O-[E]$_s$-R$_6$,

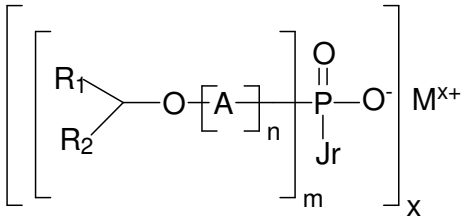
in which R$_6$ represents a group chosen from a hydrogen atom or a linear, branched or cyclic, saturated or unsaturated hydrocarbon-based group, comprising from 1 to 30 carbon atoms, E represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof, and s denotes an integer ranging from 0 to 100,

- m denotes an integer ranging from 1 to 3,
- q and r denote integers ranging from 0 to 2,

it being understood that m + q + r = 3.

[0014] A subject of the present disclosure is also the salts of the compounds described in formula (I) with one or more cationic groups bearing at least one cation chosen from an ammonium cation, a metal cation, a nitrogen cation, a boron cation and a phosphorus cation.

[0015] Examples of these salts may be described by formula (II) below:



(II)

in which:

- M^{x+} represents a cationic group bearing at least one cation chosen from an ammonium cation, a metal cation, a nitrogen cation, a boron cation and a phosphorus cation,
- x is an integer ranging from 1 to 7, and
- the other variables being as defined in formula (I) hereinabove.

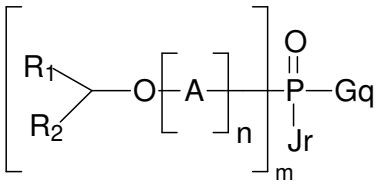
[0016] Formula (II) is derived from formula (I), in which q denotes 1, p denotes 0 and R_5 represents a labile hydrogen atom.

[0017] A subject of the present disclosure is also a mixture of the compounds described in formula (I) and of the salts of the compounds described in formula (I) with metal cations and organic compounds including amines, illustrated in formula (II).

[0018] Another subject of the disclosure is the use of the compound of formula (I) according to the disclosure and salts thereof, as surfactant, low-foaming surfactant, wetting agent, foaming agent, hydrotrope, detergent, solvent, reactive solvent, coalescer, compatibilizer, emulsifying agent, dispersant, chemical intermediary, corrosion inhibitor, demulcent, plasticizer, sequestrant, mineral deposition inhibitor, ionic liquid, stabilizer, lubricant, bitumen additive, deinking additive, oil gellant, ore flotation collector, processing

CLAIMS

1. A compound of formula (I) below, and also the addition salts thereof with an organic or mineral base, the solvates, and mixtures thereof:



(I),

in which:

- the group formed by R_1, R_2 and the carbon atom to which R_1 and R_2 are attached is chosen from the 2-octyl radical and the 4-methyl-2-pentyl radical, more particularly the 2-octyl radical,
- n is an integer between, limits inclusive, 1 and 100, preferably between 2 and 100, more preferably between 3 and 100, more particularly between 5 and 100 and very preferably between 10 and 100,
- A represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof,
- G denotes the group $-O-[B]_p-R_5$,

in which R_5 represents a group chosen from a hydrogen atom or a linear, branched or cyclic, saturated or unsaturated hydrocarbon-based group, comprising from 1 to 30 carbon atoms, B represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof, and p denotes an integer ranging from 0 to 100,

- J denotes the group $–O-[E]_s-R_6$,

in which R_6 represents a group chosen from a hydrogen atom or a linear, branched or cyclic, saturated or unsaturated hydrocarbon-based group, comprising from 1 to 30 carbon atoms, E represents a sequence of one or more units chosen from ethylene oxide, propylene oxide and butylene oxide units, and mixtures thereof, and s denotes an integer ranging from 0 to 100,

- m denotes an integer ranging from 1 to 3,
- q and r denote integers ranging from 0 to 2,

it being understood that $m + q + r = 3$.

2. The compound as claimed in claim 1, characterized in that n is between, limits inclusive, 1 and 75, preferably between 2 and 75, more preferably between 3 and 75, more particularly between 5 and 75 and very preferably between 10 and 75.

3. The compound as claimed in any one of the preceding claims, characterized in that p and s, independently of each other, are between, limits inclusive, 0 and 75, preferably between 1 and 75, more preferentially between 2 and 75, more preferably between 3 and 75, more particularly between 5 and 75 and very preferably between 10 and 75.

4. The compound as claimed in any one of the preceding claims, characterized in that it is in ammonium salt form or in organic amine salt form, the organic amine being chosen from alkylamines, alkyldiamines, cycloalkylamines, alkylamido(poly)amines, aromatic amines and alkanolamines, said amines possibly being primary, secondary or tertiary, and also possibly being alkoxylated, and also from heterocyclic amines, urea, and also mixtures thereof.

5. The compound as claimed in any one of claims 1 to 4, characterized in that it is in the form of an inorganic salt chosen from the elements from column 1 of the Periodic Table of the Elements (alkali metals); the elements from column 2 of the Periodic Table of the Elements (alkaline-earth metals), the elements from columns 3 to 12 of the Periodic Table of the Elements (transition metals), the elements from column 13 of the Periodic Table of the Elements, rare earths (lanthanides and actinides), and mixtures thereof.

6. The use of the compound of formula (I) and salts thereof, alone or as a mixture, as defined in any one of claims 1 to 5, as surfactant, low-foaming surfactant, wetting agent, foaming agent, hydrotrope, detergent, solvent, reactive solvent, coalescer, compatibilizer, emulsifying agent, dispersant, chemical intermediary, corrosion inhibitor, demulcent, plasticizer, sequestrant, mineral deposition inhibitor, ionic liquid, stabilizer, lubricant, bitumen additive, deinking additive, oil gellant, ore flotation collector, processing aid in the manufacture of plastics, antistatic agent, fertilizer coating additive, for plant protection, for treating textiles and for enhanced oil recovery, for the production of electrodes and electrolytes for batteries.

7. A composition comprising at least one compound of formula (I) and/or a salt thereof, alone or as a mixture, as defined in any one of claims 1 to 5, with one or more

aqueous, organic or aqueous-organic solvents, and optionally one or more additives and fillers.