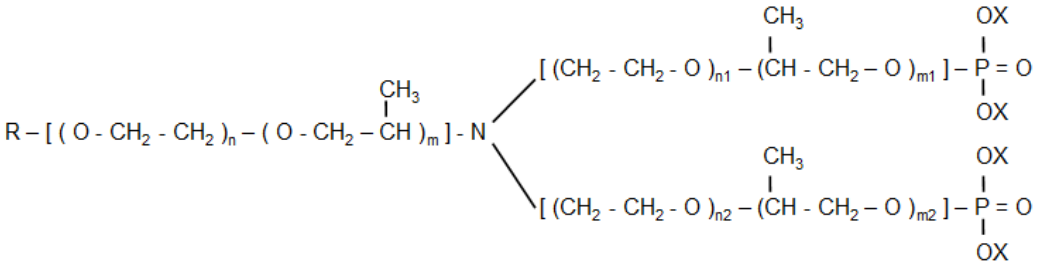
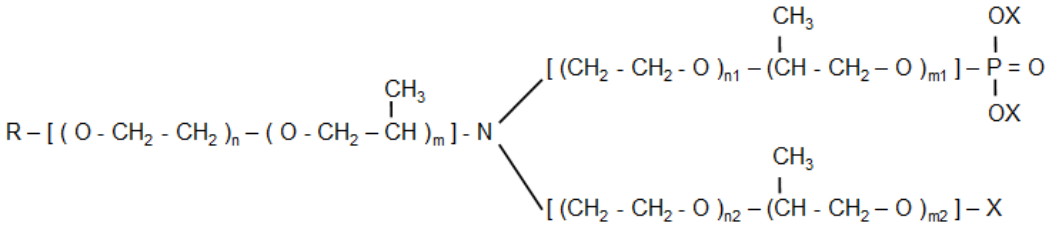
CLAIMS

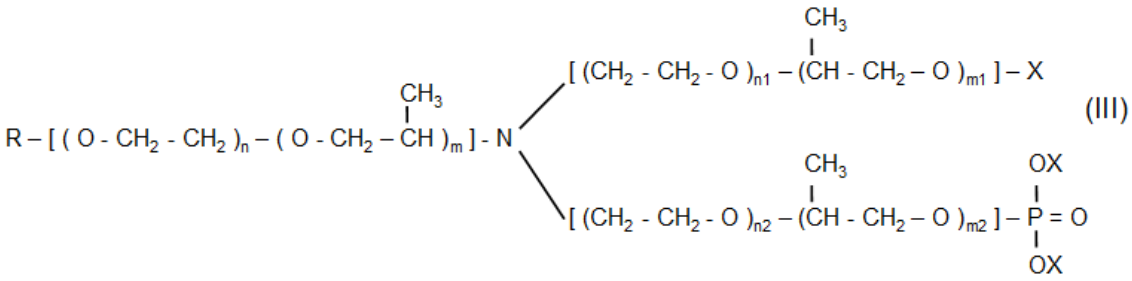
1. An additive for hydraulic compositions, comprising a mixture of the compounds of the following formulas (I), (II) and (III):



(I)



(II)



(III)

in which:

the groups (CH_2-CH_2-O) and (CH_2-CH(CH_3)-O) are arranged in blocks, alternately or randomly,

n, n_1 and n_2, independently of one another, are integers which vary between 1 and 150 (inclusive),

m, m_1 and m_2, independently of one another, are integers which vary between 0 and 150 (inclusive),

with $n + m \geq 10$,

with $n_1 + m_1 \geq 1$,

with $n_2 + m_2 \geq 1$,

the group R is chosen from one or more of the elements H, CH_3, C_2H_5, C_3H_7, C_4H_9, PO_3X_2 or the group NYZ in which:

Y and Z may be identical or different,

Y represents $(EO)_{n3} - (PO)_{m3} - PO_3X_2$ or $(EO)_{n3} - (PO)_{m3} - H$,

Z represents $(EO)_{n4} - (PO)_{m4} - PO_3X_2$ or $(EO)_{n4} - (PO)_{m4} - H$,

n_3 and n_4, independently of one another, are integers which vary between 1 and 150 (inclusive) and

m_3 and m_4, independently of one another, are integers which vary between 0 and 150 (inclusive),

X in $–[(CH_2\text{-}CH_2\text{-}O)_n\text{-}(CH_2\text{-}CH(CH_3)\text{-}O)_m]\text{-}X$ moiety represents H;

X in $–[(CH_2\text{-}CH_2\text{-}O)_n\text{-}(CH_2\text{-}CH(CH_3)\text{-}O)_m]\text{-}PO_3X_2$) moiety represents H or M; and

M represents a monovalent, divalent or trivalent cation.

2. Additive according to claim 1, in which $n_1 + m_1 \leq 10$ and $n_2 + m_2 \leq 10$.

3. Additive according to any one of the preceding claims, according to which, in formulas (I), (II) and (III), n_1 and n_2 are equal to 1 and m_1 and m_2 are equal to 0.

4. Additive according to any one of the preceding claims, according to which, in formulas (I), (II) and (III), R represents CH_3.

5. Additive according to any one of the preceding claims, according to which M is chosen from the group consisting of the potassium ion, sodium ion, lithium ion, calcium ion, magnesium ion, ammonium ion and a mixture of these ions.

6. Additive according to any one of the preceding claims, according to which, in formula (I), m is equal to 0.

7. Additive according to any one of the preceding claims, according to which in formula (I), n varies between 20 and 120 (inclusive).

8. A hydraulic composition comprising:

- water,
- a hydraulic binder comprising a cement and
- at least one additive for hydraulic compositions according to any one of the claims 1 to 7.

9. Hydraulic composition according to claim 8, comprising, relative to the total weight of the composition:

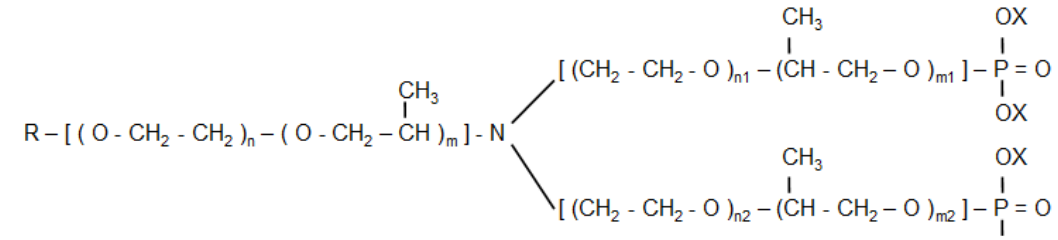
- from 2 to 15% by weight of water,
- from 10 to 30% by weight of hydraulic binder comprising a cement and
- from 0.05 to 3% by weight of said at least one additive.

10. Hydraulic composition according to claim 9, further comprising from 10 to 60% by weight of sand.

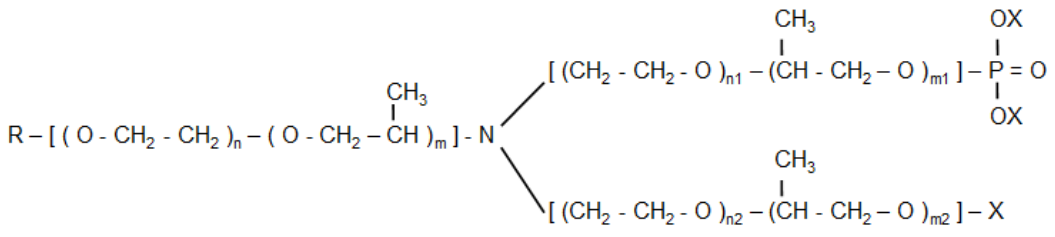
11. Hydraulic composition for concrete according to any one of the claims 8 to 10, comprising:

- from 2 to 15% by weight of water,
- from 10 to 30% by weight of hydraulic binder comprising a cement,
- from 0.05 to 3% by weight of said at least one additive,
- from 10 to 60% by weight of sand and
- from 10 to 60% by weight of one or more gravels.

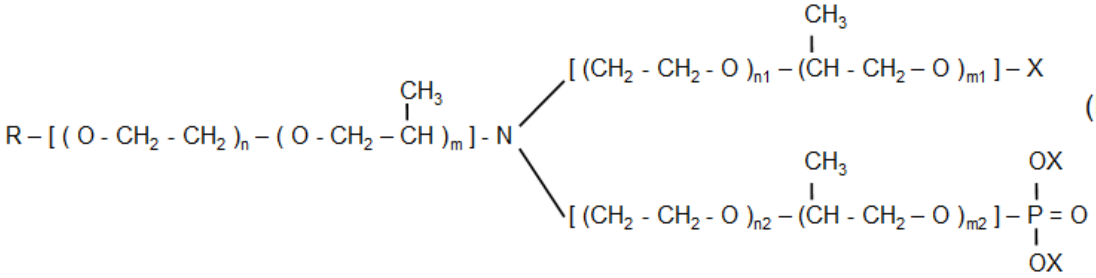
12. A method for preparing an additive for hydraulic compositions, said additive comprising a mixture of compounds of the following formulas (I), (II) and (III):



(I)



(II)



(III)

in which:

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with $n + m \geq 10$,

with $n_1 + m_1 \geq 1$,

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the group R is chosen from one or more of the elements H, CH_3, C_2H_5, C_3H_7, C_4H_9, PO_3X_2 or the group NYZ in which:

Y and Z may be identical or different,

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Z represents $(EO)_{n4} - (PO)_{m4} - PO_3X_2$ or $(EO)_{n4} - (PO)_{m4} - H$,

n_3 and n_4, independently of one another, are integers which vary between 1 and 150 (inclusive) and

m_3 and m_4, independently of one another, are integers which vary between 0 and 150 (inclusive),

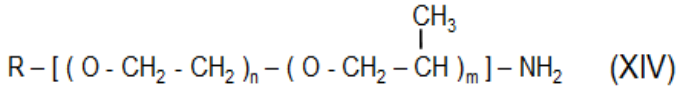
X in $-[(CH_2\text{-}CH_2\text{-}O)_n\text{-}(CH_2\text{-}CH(CH_3)\text{-}O)_m]$-X moiety represents H;

X in $-[(CH_2\text{-}CH_2\text{-}O)_n\text{-}(CH_2\text{-}CH(CH_3)\text{-}O)_m]\text{-}PO_3X_2$) moiety represents H or M; and

M represents a monovalent, divalent or trivalent cation,

said method comprising the following steps:

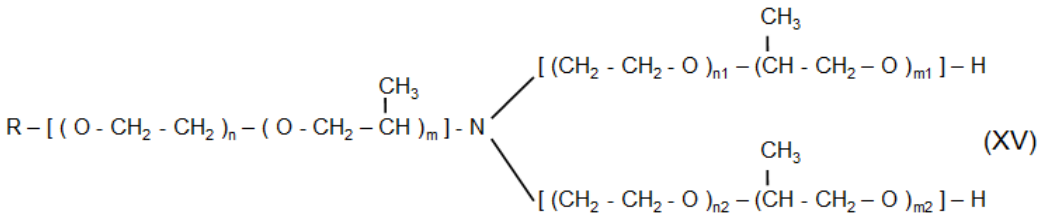
- oxyalkylation of the compound of formula (XIV):



$$R-[(O-CH_2-CH_2)_n-(O-CH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}})_m]-NH_2 \qquad (XIV)$$

in the presence of at least $(n_1 + n_2)$ moles of ethylene oxide and at least (m_1+m_2) moles of propylene oxide per mole of the compound of formula (XIV),

- phosphatization of the intermediate compound of formula (XV):



(XV)

in the presence of P_2O_5 and water and

- optionally, partial or complete neutralization of the phosphate compound thus obtained, so as to obtain an additive comprising a mixture of the compounds of formulas (I), (II) and (III).

13. The use of an additive according to any one of the claims 1 to 7, for preparing a hydraulic composition chosen from a concrete and a mortar.

14. A method for preparing a hydraulic composition, consisting of adding an additive according to any one of the claims 1 to 7 to said composition.