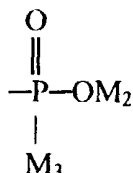


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10 in which M₁ and M₂ are a hydrogen ion or alkali-metal ion, or in which R₂ is a group having the formula



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20 in which M₂ has the abovementioned meaning and M₃ is $-\text{[R}_1\text{]}_n\text{-O Ar}$, R₁, n and Ar having the abovementioned meaning,

ketones, aliphatic and/or aromatic carboxamides such as formamide, acetamide, propionamide, butyramide, methacrylamide or benzamide, an acid containing at least one SH group or a salt of such an acid, for example a mercaptosulphonic acid or a mercaptocarboxylic acid, as additive for hydraulically setting mortars.

25 **[0010]** In this description the expression "process according to the invention" refers to the general method of preparation resulting in aqueous solutions which are used according to the present invention.

[0011] In general, the cheap sodium sulphite can be used as the sulphonating agent III.

30 **[0012]** In the process according to the invention, a co-reacting agent IV may optionally be used. This may be, for example, an agent which promotes the solubility. As compounds IV, mention may be made, in particular, of the additives which are described in DE-A-3 107 852, DE-A-3 410 820, DE-A-3 609 802, EP-A-0 557 211 and WO 91/12214. Said literature references must be regarded as incorporated herein.

[0013] The co-reacting compound IV preferably contains an acid group and another functional group, such as an amino group. The compound IV is added in step a) of the process according to the invention if it renders the reaction mixture alkaline. This is the case, for example, if compound IV is present in the form of a water-soluble alkali-metal or alkaline-earth-metal salt of an aminosulphonic acid. Preferably, compound IV is used in an amount of between 0.3 mol, based on 1 mol of compound I.

[0014] Co-reacting compound IV may also be added at the beginning of step b) if it reduces the pH. In this case, no salts, but free acids will be used.

40 **[0015]** At the end of step b) of the process according to the invention, co-reacting agent IV may also be added in order to increase the pH again.

[0016] In the novel process, an attempt will be made to bond, in the first phase of the preparation of the condensation product, a maximum amount of sulphonating agent III (sulphite) and aldehyde II (for example, formaldehyde) to 1 mol of compound I (for example, melamine). This reaction can be monitored by determining the free sulphonating agent, for example sulphite. The reaction is continued until the content of free sulphonating agent (sulphite) no longer decreases. The excess sulphonating agent (sulphite) is eliminated by adding an oxidizing agent, for example hydrogen peroxide. According to the invention, it is preferable that, in step b), additional compound I is added only after free sulphonating agent III can no longer be detected.

45 **[0017]** The process according to the invention can be carried out under various temperature and pH conditions. Preferable is an embodiment in which, in step a) an adjustment is made to a pH of 9 - 13 and a temperature of 65 - 100°C and condensation is carried out until sulphonating agent III is no longer reacted and, in step b) an adjustment is made to a pH in the range 3 - 9 and a temperature in the range 40 - 100°C. In the second phase, the condensation is continued until the product fulfils the requirements for a superplasticizing agent or, in other words, fulfils the definition of NEN 3532. After the desired viscosity has been reached, the condensation reaction is stopped by adding alkali. To guarantee a good stability during storage, the pH is adjusted to 7 - 11 depending on the concentration. At a lower concentration, the pH may be low.

55 **[0018]** A different polycondensation product will always be produced i.e. a product with a somewhat different chemical structure will always be produced, depending on the amount of compound I (for example, melamine and/or urea) to be added in the second step.