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Hydrolysis and Condensation Reactions of Methacrylate-Modified Aluminum Alkoxides

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Abstract: The hydrolysis of aluminum tri-sec-butoxide and compounds obtained by substituting the larger functional groups for the present alkly groups in $Al(O\text{-}sec\text{-}Bu)_3$, and the reaction of these products with a polymerizable organic ligand, i.e. methacrylic acid, were studied together with the hydrolysis reactions of the final products. A good method of preparing high-tech materials and new composites uses organo-substituted silicon esters and/or alkoxides of various elements in a polycondensation process. Introducing a suitable organic network into the inorganic backbone gives desirable properties in new coating materials. The preparation of such materials is possible via the hydrolysis of metal alkoxides. Usually, different alkoxides have different hydrolysis rates and mechanisms and thus different condensation and complexation characteristicss.

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