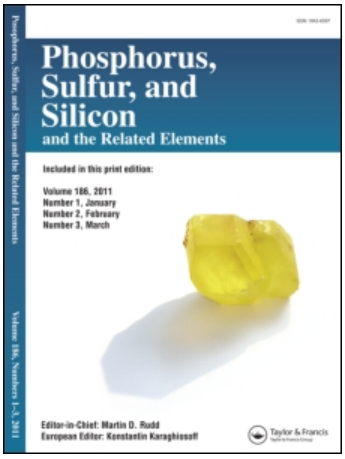

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THE INVESTIGATION OF MONOMER SYNTHESIS METHODS FOR POLYSULFONES AND OTHER NEW CLASSES OF SULFUR-CONTAINING POLYMERS

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Polysulfones, the new promising class of sulfur-containing polymers, are produced by aromatic nucleophilic and electrophilic substitution reactions. The first way is based on 4,4'-dichlorodiphenylsulfone (DCDPS) application as one of the basic monomers,which can be produced by three technical methods, utilizing strong sulfonating and sulfonylating agents. The reaction of hydrocarbon sulfonylation with arylsulfochlorides in the presence of small quantities of Fe chloride (kinetics, mechanism, the reactivity of initial compounds) was investigated in detail. For the first time the competitive inhibiting by initial and final products was found in this reaction, and its quantitative evaluation was given. The data obtained allowed to explain the experimentally observed anomalous reactivity of arylsulfochlorides. The chemistry of sulfonylation reaction with stabilized liquid sulfuric anhydride and dimethylsulfate was thoroughly investigated. The peculiarities and application limits of substituted diphenylsulfones synthesis methods were discussed.

A number of initial compounds synthesis was carried out for producing polysulfones by nucleophilic homopolycondensation reaction (oxychlorodiphenylsulfone and its polynuclear analogs). The improved methods of thiophenols synthesis, thiophenols being the second component in polymers production, were suggested.

To produce polysulfones by the second way the synthesis methods of great amount of aromatic mono - and disulfochlorides were developed. On the basis of the latter the polynuclear analogs of the known monomers for polysulfones, and also the new monomers for polysulfimides were produced.

Basing on DCDPS and 3,4,3',4' - tetrachlorodiphenylsulfone the methods of corresponding bisphenols synthesis were developed.

To synthesize highly thermostable polymides the methods of certain polymethyldiphenylsulfones synthesis were investigated, the oxidation of the latter gave corresponding polycarboxylic acids. The syntheses of 4,4' -diamino- and 3,4,3',4'-tetraamino-diphenylsulfones for these polymers were developed.