



## **STYRENE POLYMERIZATION IN THE PRESENCE OF IONIC LIQUID CATALYTIC SYSTEMS**

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Recently the processes, which have obtained the general name «green chemistry» became one of priority directions in chemistry. Ionic liquids (IL) also draw attention as ecologically safe solvents, catalysts, extractants since they are easily separated and purified from reaction products and can be repeatedly used [1-4].

Considering what we mentioned before, styrene polymerization reaction in the presence of ionic liquid catalytic systems (ILCS) synthesized by co-reaction of N-containing compounds like diethylaminehydrochloride (I), piperidinehydrochloride (II) and 2,6-methyl-morpholyl-4-methyl-phenol (III) with AlCl<sub>3</sub> has taken place. ILCS have also been acquired from the co-reaction of I,II,III with a catalytic complex on the basis metallic Al in dichlorethane.

Styrene polymerization reactions have taken place in nitrogenous environment with temperature of 2-4° C, for a while of 15-20 minutes. A strong exothermic reaction is not observed in the presence of ILCS differing from styrene's cation polymerization in the presence of AlCl<sub>3</sub>.

Gained products can easily be separated from ILCS which can be used repeatedly. Products precipitate in isopropylene alcohol and separate from non-reacting monomers. The result is approximately equal to 70% of the total mass. Molecular-mass characteristics have been defined by gel permeation chromatography (GPC) for following products: Mw-1615-4950, Mn- 390-1600, Mw/Mn- 3,14-4,4. It has been obvious from the IR spectroscopy that final products turn out to contain vinyl groups.

As a result, it has been concluded that styrene's regulated polymerization reactions can take place in the presence of ILCS, especially in favourable ecologic circumstances.

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