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HOMO- AND COPOLYMERS OF VINYLFLUORIDE

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In this paper some special features of emulsion polymerization of vinylfluoride (VF) and its copolymerization with vinyliden fluoride (VDF), threefluoroethylene (ThFE), tetrafluoroethylene (TFE) and hexafluoropropylene (HFP) in the presence of different emulsifiers, initiated by 'redox'-systems, have been studied.

It was shown that emulsifiers by their activity in the reactions of homo- and copolymerization of VF are placed in the following sequence: anionic- > nonionic- > cation-active compounds. The highest rate of homo- and copolymerization is observed while using perfluorocarbonic acids and their salts. It was established that the chemical process proceeds through the three stages: induction period, postnuclear stationary stage and finishing stage, typical for the emulsion (co)polymerization of polar monomers being low soluble in water. In all cases the obtained copolymers were enriched in VF compared to the initial monomer mixture. High activity of VF as well as low stability of radical, obtained from the VF molecule, lead to the fact that during copolymerization with fluorolefines it is charecterized by high values of copolymerization constants ($r_{VF} \gg 1$). Introduction of fluorolefine links leads to the increase of heat-, thermo- and chemical stabilities and simplification of polyvinylfluoride conversion. A possibility of conversion of homo- and copolymers of VF into films, fibers and coverings is shown.