2nd INTERNATIONAL AEGEAN PHYSICAL CHEMISTRY DAYS

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AYVALIK/BALIKESIR - TURKEY

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CONTACT

Prof. Dr. Mahir ALKAN
apcd2004@balikesir.edu.tr
Tel: +90 266 249 10 11
Fax: +90 266 249 10 12

WEB: http://apcd2004.balikesir.edu.tr
e-mail: apcd2004@balikesir.edu.tr

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THE SALTING EFFECT ON EMULSIFIER-FREE EMULSION POLYMERIZATION OF METYHL METHACRYLATE

Seda Can[1] and Taner Tanrısever[1]

[1]Department of Chemistry, Faculty of Science & Literature, Balıkesir University, 10100, Balıkesir, Turkey.
Email: sedacan@balikesir.edu.tr, taner@balikesir.edu.tr

The emulsifier-free emulsion polymerization of methyl methacrylate (MMA) was carried out with $K_2S_2O_8$ as initiator in the presence of salts (NaCl, NaBr, LiCl, Na_2SO_4, $MgCl_2$, $CaCl_2$, $BaCl_2$) at 75 °C. The effects of various salts on kinetics of polymerization, average molecular weight of polymer and bead size was investigated. The average molecular weight of polymer was determined using Gel-permeation chromatography and measuring viscosity, and bead size was determined using scanning electron microscopy. It was found that with increasing concentration of the salt, polymerization rate and average molecular weight of polymer decrease, bead size increases. It was observed that electrolytes generating the same ionic strength have different effects on polymerization and the features of polymer. At the same electrolyte concentration, as increased Stokes radii of cation of salts that not react with other matter (the fragments of initiator, ions etc.) in polymerization, polymerization rate and average molecular weight of polymer decreased, polymer particle diameter increased.