

# 2<sup>nd</sup> INTERNATIONAL AEGEAN PHYSICAL CHEMISTRY DAYS

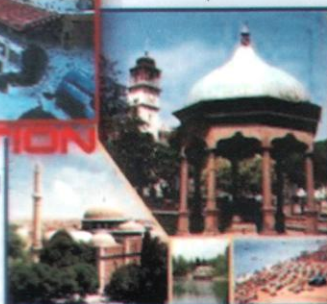


7 - 10 OCTOBER 2004  
AYVALIK/BALIKESİR - TURKEY



## ORGANIZATION

BALIKESİR UNIVERSITY  
Institute of Natural  
and Applied Science  
Department of Chemistry



## TOPICS

Surface Chemistry and Colloids  
Polymer Chemistry  
Quantum Chemistry  
Thermodynamics  
Rheology  
Spectroscopy  
Catalysis  
Chemical Kinetics  
Electrochemistry  
Phases and Phase Equilibrium  
Enzyme Kinetics  
Physical Organic Chemistry  
Physical Chemistry Education



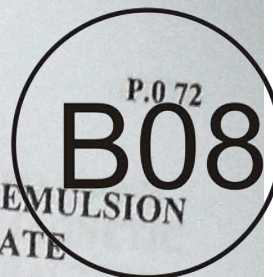
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# THE SALTING EFFECT ON EMULSIFIER-FREE EMULSION POLYMERIZATION OF METHYL METHACRYLATE



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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.