

Synthesis and solution properties of hydrophobically associating ionic polymers made from diallylammonium salts/sulfur dioxide cyclocopolymerization

Prof. SHAIKH ASROF ALI

**Dept. of Chemistry , College of Science ,
King Fahd University of Petroleum & Minerals**

<http://www.kfupm.edu.s>

ABSTRACT

Sulfur dioxide, N,N-diallyl-N-carboethoxymethylammonium chloride and the hydrophobic monomers N,N-diallyl-N-dodecylammonium chloride or N,N-diallyl-N-octadecylammonium chloride were cyclocopolymerized in DMSO using azobisisobutyronitrile as the initiator to afford water-sol. cationic polyelectrolytes (CPE) having a five-membered cyclic structure on the polymeric backbone. The CPE on acidic (HCl) hydrolysis of the pendent ester groups gave the corresponding cationic acid salt (CAS) which was converted to the anionic polyelectrolyte (APE) by treatment with sodium hydroxide. The soln. properties of the CPE and APE contg. varying amts. of the hydrophobic monomers in the range 0-10 mol % were investigated by viscometric techniques. The polymers showed that a concn. (C^*_{HA}) of <1 wt. % was required for the manifestation of hydrophobic assocn. The polymers displayed significant hydrophobic assocn. in salt (NaCl)-free as well as salt-added solns.