

Synthesis and Characterization of Polymeric Membrane for the Removal of Selected Heavy Metal Ions from Aqueous Media

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A series of new specialty sulfonated diamine monomers containing oxygen, amine and sulfonate (having chelating properties) were synthesized from inexpensive and commercially available diamine. Sulfonated polyimides containing sulfonated diamine monomers 1,4,5,8-naphthalene tetra carboxylic dianhydride and readily available nonsulfonated diamines were synthesized and characterized with tremendous scientific and technological interest. Sulfonated polyimides were characterized by various spectroscopic techniques such as Fourier Transform Infrared Spectroscopy (FTIR), Nuclear Magnetic Resonance Spectroscopy (NMR) and Thermal Gravimetric Analysis (TGA). The physicochemical and mechanical properties of the sulfonated polyimides based composite membranes were studied in great details. Pore generating agent, poly vinyl pyrrolidone of different molecular weights were added during composite membrane preparation to control the pore size. The selected composite membrane was explored to study their efficiencies for the removal of metal ions from the aqueous solutions. Effect of commercially available complexing agent like, functionalized chitosan on the membrane performance will also be discussed.

Biography

Dr. M. A. Jafar Mazumder completed his PhD in Chemistry from McMaster University, Canada, currently working as an Associate Professor of Chemistry at King Fahd University of Petroleum & Minerals (KFUPM), Saudi Arabia. Dr. Mazumder secured 5 US patents, edited 2 books, published more than 35 journal articles and presented his research more than 20 international conferences. His main researches focused on synthesis and characterization of various organic and polymeric biomaterials for their potential use in the inhibition of mild steel corrosion in oil and gas industries and for the removal of heavy metals and organic contaminants from aqueous samples.