Contribution ID: **34** Type: **Poster**

The effect of crown-ethers additives on poly (2-[N, N diéthylaminoethyle] methacrylate) (PDAEM) and cellulose triacetate (CTA) asymmetric dialysis membrane performance

Polymer inclusion membranes used for selective transport and separation of metallic ions has emerged in recent times. Their expansion depends on the method of preparation and the study of their structure. In this paper, an improvement of a novel category of thin films for performing ions separation was reported. The membrane was elaborated using a mixture of polymers: cellulose triacetate (CTA) and 2-[N, N diéthylaminoethyle] (PDAEM) and plasticized by 2-Nitrophenyl pentyl-ether (NPPE) and crown ethers incorporated into the polymer as a metal ion carrier. The membranes (Polymer1– Plasticizer – Polymer2) were synthesized using a new method and characterized by various techniques including Fourier Transform Infrared (FTIR) spectroscopy, X-Ray Diffraction (XRD), Thermogravimetric Analysis (TGA) and Scanning Electron Microscopy (SEM). The CTA membrane exhibited by well-defined pores completely filled with the second polymer and plasticizer (NPPE). Surfaces of all synthesized membranes were found to be smooth. The systems constituted by the mixture of (polymer1 + plasticizer + polymer2 + carrier) did not give any diffraction. This could be due to the absence of crystallization within the membrane. Overall, our results showed that the addition of plasticizer with two polymers resulted in homogeneous and hydrophobic membranes whose physical properties, such as density, thickness, and hydrophobicity, were modified. As applications, transport of Pb(II) in polymeric membranes (PIM) was studied.

Preferred topic

Polymers and environment

Primary authors: ABDELLAOUI, Naima (Faculté de Chimie USTHB); HIMEUR, Zahra (Faculté de Chimie USTHB); AROUS, Omar (Faculté de Chimie USTHB)

Presenter: AROUS, Omar (Faculté de Chimie USTHB)