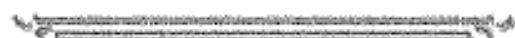


TITLE: Lithium plasticized polymer electrolyte membranes synthesized with PVdF-HFP

AUTHORS: Trishana Ramkissoon

SUPERVISOR: Dr. H. Missan



Lithium batteries are alternative sources of energy which differentiates itself from other battery systems by the type of electrolyte being used. Many issues were discussed for the improvement of the battery. Membranes were synthesized using Polyvinylidene fluoride-co-hexafluoropropylene (PVDF-HFP), with varying concentrations of lithium triflate (LiCF_3SO_3) as the conducting salt in a solution of tetrahydrofuran (THF). Maximum recorded conductivity was found to be 4.59×10^{-7} S/cm for membranes having composition (PVDF-HFP + 10wt% LiCF_3SO_3). Polymer electrolytes of PVDF-HFP were plasticized with .1ml, .2ml and .3ml of propylene carbonate (PC), for selected wt% of LiCF_3SO_3 dissolved in THF. Conductivity, X-ray diffraction (XRD) and scanning electron microscopy (SEM) studies were carried out to measure the electrical, structural and morphology properties. The effect of the plasticizer (PC) has also been studied.