

## Ionic Conductivity Studies of Polymeric Electrolytes Containing Lithium Salts with Various Plasticizers

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New plasticized polymer electrolytes were synthesized by using poly ethylene oxide (PEO), poly (N,N-dimethyl-amino-ethyl-methacrylate, LITFSI as a salt and tetra ethylene glycol dimethyl ether and EC+PC as a plasticizer. The preparation and characterization of composite polymer electrolytes were investigated as a function of temperature and various concentration of LiN (CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>. The complex of PDMAEMA/PEO/LiTFSI/ tetraglyme (S2) exhibits higher conductivity (4.74\*10<sup>-4</sup> Scm<sup>-1</sup> at 25oC) than PDMAEMA/PEO/LiTFSI/ EC+PC (S1).

Impedance spectroscopy and DSC characterized the effects of various plasticizers, lithium salt concentration and temperature on conductivity of these new polymer electrolytes.

### Conclusion

The conductivity of polymer electrolytes have increased with increasing until the concentration of salt 0.9mole/kg(S1),1.5mole/ kg (tetraglyme). The complex of S2 exhibits the higher conductivity (4.74\*10<sup>-4</sup>Scm<sup>-1</sup> at rt.)

### Result

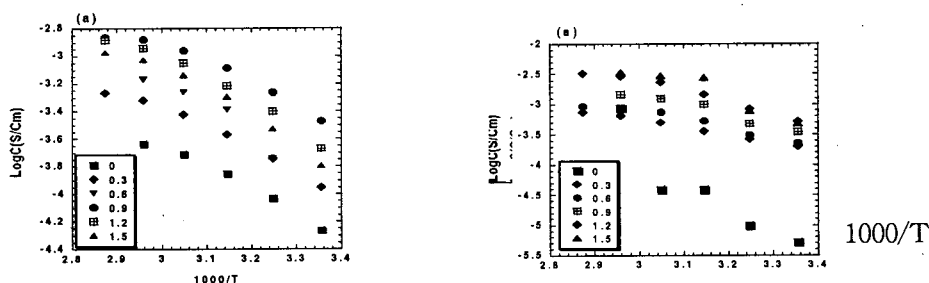


Fig1. Conductivity of S1 (a), S2 (b) as a function of temperature

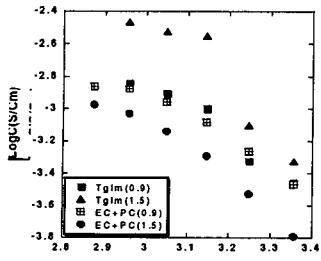


Fig2. Comparative Conductivity of S1and S2 as a function of temperature.