



Structural and morphological studies on nanocomposite polymer blend electrolytes for Li-ion battery applications

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Abstract: Poly (Methylmethacrylate) (PMMA), Poly (Vinylidene Fluoride –co- HexaFluoro Propylene) and Barium titanate (BaTiO₃) based composite polymer electrolytes were prepared by solvent casting technique. The ionic conductivity of the polymer composite electrolytes was investigated by varying the filler concentration. The maximum ionic conductivity was found to be 3.58×10^{-5} S/cm at room temperature for PMMA (6.25 wt %) - PVdF-co-HFP (18.75 wt%)-LiClO₄ (08 wt %) - BaTiO₃ (08 wt %). The structural studies were carried out by X-ray diffraction analysis. The complex formation between the polymer and salt was confirmed by FT-IR study. Surface morphology of the sample having maximum ionic conductivity was scrutinized by SEM.

Key Words : Polymer electrolyte, PVdF-co-HFP, BaTiO₃, SEM

K.Selva Kumar *et al*/International Journal of ChemTech Research, 2017,10(4): 390-396.
