IMPEDANCE SPECTROSCOPY STUDY ON THE REACTIVITY OF PVDF/HFP-BASED GEL POLYMER ELECTROLYTES TOWARDS A LITHIUM ELECTRODE
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ABSTRACT
The reactivity of poly(vinylidene-co-hexafluoropropylene) (PVdF/HFP)-based gel polymer electrolytes towards a lithium electrode was studied by AC impedance spectroscopy technique. PVdF/HFP-based gel polymer electrolyte (GPE) was formed by immobilizing the lithium hexafluorophosphate (LiPF$_6$) in a mixture of ethylene carbonate-dimethyl carbonate (EC-DMC) liquid electrolyte in the copolymer matrix. The impedance measurement was run during 10 days storage of a cell of Li/gel polymer electrolyte/Li. Results obtained were used to identify charge-transfer resistance, double layer capacitance and properties of passivation films. Ceramic filler of SnO$_2$ was introduced in the system in attention to improve the transport properties as well as to reduce the reactivity towards lithium electrode.

REFERENCES

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