

Das, S.; Suresh, B. R.; Jayaraman, N.; Bhattacharyya, A. J. 2012, “Ionic conductivity of bis(2-cyanoethyl)ether-lithium salt and poly(propyl ether imine)-lithium salt liquid electrolytes”, *J. Polym. Res.*, 19, 1 – 6.

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Poly(propyl ether imine) (PETIM)-lithium salt dendrimer liquid electrolyte with high ionic conductivity ($\sim 10^{-3} \Omega^{-1}\text{cm}^{-1}$), high thermal stability (boiling point $\sim 300 \text{ }^\circ\text{C}$), low moisture sensitivity and tunable viscosity ($\sim 10^{-2}$ to 3 Pa s) is proposed as an alternative to molecular liquid solvent and ionic liquid electrolytes for rechargeable lithium ion batteries. The linker functional group (in this case the ether) is found to be crucial for such high ionic conductivities ($\sim 10^{-3} \Omega^{-1}\text{cm}^{-1}$) ever reported. An important advantage with PETIM dendrimers is that they are case of dendrimer based polymer electrolytes or in general for polymer electrolytes. The dendrimer structure also plays a crucial role in eliminating a large number of the detrimental features chiefly moisture sensitivity, chemical instability associated with room temperature ionic liquids and molecular liquid solvents. The PETIM electrolytes are chemically stable under voltage applications of $\geq 4 \text{ V}$.