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(54) Title: LITHIUM ION ELECTROLYTES WITH LIFSI FOR IMPROVED WIDE OPERATING TEMPERATURE RANGE

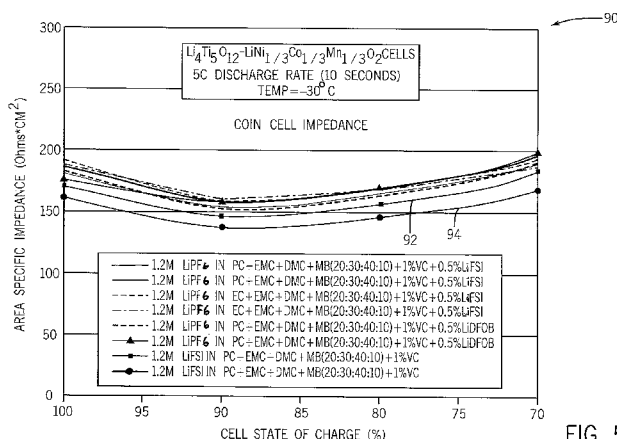


FIG. 5

(57) Abstract: A lithium ion battery cell includes a housing, a cathode disposed within the housing, wherein the cathode comprises a cathode active material, an anode disposed within the housing, wherein the anode comprises an anode active material, and an electrolyte disposed within the housing and in contact with the cathode and anode. The electrolyte includes a solvent mixture and a lithium salt serving as a primary lithium ion conductor in the electrolyte to allow for lithium ion intercalation and deintercalation processes at the cathode and the anode during charging and discharging of the lithium ion battery cell. The solvent mixture includes a cyclic carbonate and one or more non-cyclic carbonates. The lithium salt is lithium bis(fluorosulfonyl)imide (LiFSI). The solvent mixture and LiFSI are configured to enhance the low temperature performance of the lithium ion battery cell at operating temperatures below 0 °C.

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