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Process optimization for the synthesis of cathode materials for Li ion rechargeable batteries SAMUEL CHIOVOLONI, DONALD COLEBROOK, PETER LEMAIRE, RAHUL SINGHAL, None — Considerable research has been done in the last decade to identify novel cathode materials for high energy density Li ion rechargeable batteries. The optimized cathode should have stable structure upon Li ion deintercalation/intercalation during charging and discharging, respectively with reasonable discharge capacity and cycleability at high C, lower synthesis cost and environmentally friendly. It has been reported that electrochemical properties of spinal $LiMn_2O_4$ cathode materials can be improved by partly replacing with transition metal ions e.g. Co, Fe Ni, Cr, Cu etc. In this work we have optimized the synthesis process to synthesize $LiMn_{2-X}Fe_XO_4$ ($0 \leq x \leq 0.5$) cathode materials. The synthesis of the materials were carried out via sol-gel process. As-prepared synthesized materials were studied using Differential Scanning Calorimetry (DSC) and Thermo-gravimetric analysis (TGA). Based upon the transition temperatures observed in DSC spectra we have calcined the materials corresponding to each transition, and then XRD was taken in order to study the phase purity of the materials. The detailed results of our investigation will be presented during the meeting.

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None

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