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## Synthesis of $\text{LiMn}_x\text{Co}_{1-x}\text{O}_2$ by different low – temperature techniques

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**Abstract** Single phase  $\text{LiMn}_x\text{Co}_{1-x}\text{O}_2$  ( $x = 0.3$ ) with fine particles were prepared by two low-temperature methods, namely sol-gel (modified Pechini method) and combustion techniques (SPCS). It was found that bulk quantities of nano-sized particles of layered  $\text{LiMn}_x\text{Co}_{1-x}\text{O}_2$  could be obtained at temperatures below  $400^\circ\text{C}$  by these solutions techniques. The synthesized products were characterized by structural (XRD), spectroscopic (FTIR) and thermal (DTA-TG) analyses. Electron microscopy was used to evaluate the morphology of synthesized  $\text{LiMn}_x\text{Co}_{1-x}\text{O}_2$ . We obtain for sol – gel method a nano-crystals with mean diameter about 5 nm, and for combustion method 75 nm for glycine and 200 nm for urea.

**Keywords:** lithium-manganese-cobalt oxide, sol-gel, SPCS, XRD, TEM

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