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

Ionela CARAZEANU^{a*}, Elisabeta CHIRILĂ^a, Alina BĂDĂNOIU^b Georgeta VOICU^b and Carmen GUGUȚĂ^a

^a*Ovidius University of Constantza, Chemistry Department, 124 Mamaia Blvd, Constanta, Romania*

^b*Politehnica University of Bucharest, SIMO Dept., 1 Polizu Street, Bucharest, Romania*

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°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
