DOPING Co, Ni, Cr ON LiFePO4 WITH REFLUKS METHOD BASED ON MICROWAVE IRADIATION FOR LITHIUM ION BATTERY CATHODE

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ABSTRACT

The aims of this study is to obtain the relationship between the quantity and type of Co, Ni, Cr doped $LiFePO_4$ on physical characteristics (particle size, morphology, and microstructure) of $LiFePO_4$
This research develops the synthesis of $LiFePO_4$ with the microwave irradiation-assisted reflux method. The variable studied in this study was the effect of quantity and type of dopant on $LiFePO_4$. Quantity and type of dopant greatly affect the character of the results of the synthesis which includes purity, type of phase, stability of the structure and crystallinity, so it is needed technique and control of these factors. The characterization of the synthesized $LiFePO_4$ was analyzed by XRD, SEM-EDX, and TEM. Meanwhile, the characterization of the microstructure is done in an initio using the WinPlotR and Diamond programs.
Expected results are Co, Ni, Cr doped $LiFePO_4$ based cathode materials which have high purity, specific capacities close to theoretical specific capacities (170 Ah / kg) and can be used for accommodation and transport of lithium ions so that they can be utilized as power lithium battery cathodes and energy high so that it is potential to be developed as a renewable energy source.

Kata Kunci: *LiFePO4 doped Co, Ni, Cr, reflux, microwave irradiation*