THE INFLUENCE OF CALSINATION TEMPERATURE ABOUT ELECTRIC CONDUCTIVITY ON SOLID ELECTROLYTE MATERIAL Li$_{1.3}$Ti$_{1.7}$Al$_{0.3}$(PO$_4$)$_3$ (LTAP) BY LIQUID MIXING METHOD

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Abstract
Synthesis of solid electrolyte material Li$_{1.3}$Ti$_{1.7}$Al$_{0.3}$(PO$_4$)$_3$ (LTAP) has been carried out by using liquid mixing method. The research has been done using raw materials Lithium Carbonat powder, Aluminium powder, Titanium Butoxide, Asam Phospate and HC solution. The synthesis of solid electrolyte material LTAP has been done with various of temperature, The temperatures were used 600°C, 700°C, 800°C, 900°C and 1000°C, with holding time for 2 hours. Characterization were done using DTA/TG, X-Ray Diffractometer (XRD), Scanning Electron Microscopy (SEM) and Electric Conductivity. Analyses of the XRD data were done using software Match! and Rietveld using software Rietica. The result of analysis shown that percentage of NASICON phase and electric conductivity were the highest, there were 65,78% and 8,71×10$^{-5}$S/cm made by calsination temperature 600°C. Particle of solid electrolyte material LTAP was sized micron in scale 0,1-1µm. The enhance of temperature, make the particle size increasing.

Key word : electrolyte, mixing, synthesis, Li$_{1.3}$Ti$_{1.7}$Al$_{0.3}$(PO$_4$)$_3$
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