

SIMULATION OF LITHIUM BATTERY DISCHARGE

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ABSTRACT

SIMULATION OF LITHIUM BATTERY DISCHARGE. A set of mathematical models was developed to predict the battery performance of lithium battery under discharge condition. The model not only account for coupled processes of electrochemical kinetics and mass transport occurring in a battery cell, but also consider heat generation within the battery. Numerical solution based on finite volume method was used for the simulation. The potential and current distribution at positive and negative electrode were calculated for various discharge times.

Key words : Lithium battery, Solid electrolyte, Battery modeling

ABSTRAK

SIMULASI PENGOSONGAN BATERAI LITHIUM. Serangkaian model matematik dikembangkan untuk memprediksi unjuk kerja baterai *Lithium* pada kondisi pengosongan. Model tidak hanya memperhitungkan proses kinetika elektrokimia dan transport massa yang terjadi dalam sel baterai, tapi juga mempertimbangkan pembangkitan panas dalam baterai. Solusi numerik berbasis metode volume terbatas digunakan untuk simulasi. Distribusi tegangan dan arus pada elektroda positif dan negatif dihitung untuk berbagai waktu pengosongan baterai.

Kata kunci : Baterai *Lithium*, Elektrolit padat, Pemodelan baterai