Analysis of the Effect of NaOH and KOH Electrolyte Concentration on the Performance of Aluminium-Air Batteries Using 1100 Aluminum Anode

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ABSTRACT

This study aims to analyze the performance of aluminum-air batteries using 1100 aluminum anode with variations of 5%, 10%, and 20% NaOH solutions and 5%, 10%, and 20% KOH by testing voltage and current. Voltage and current measurements are carried out for 10 minutes for 1 hour and are repeated 3 times and for current measurements add a load with a resistor of 5W7Ω5J. This study results that if using 1100 aluminum anode material, if the voltage is sorted from highest to lowest according to the variation of the electrolyte solution, NaOH 20% (1.48 V), NaOH 10% (1.37 V) and NaOH 5% (1.3 V) are used. For the 1100 aluminum anode, the electrolyte solution is 20% KOH (1.43 V), KOH 10% (1.39 V) and KOH 5% (1.3 V). As for the currents if sorted, the solution is 20% NaOH (29.1 mA), NaOH 10% (18.15 mA) and NaOH 5% (13.5 mA). And for 20% KOH (17,3 mA), 10% KOH (14.79 mA) and 5% KOH (10.61 mA).

Keywords *: Air-Aluminum Battery, NaOH Solution, KOH Solution*