Performance Analysis of Aluminum-Air Batteries Using Aluminium 1100 and Aluminium 5052 Anodes with Variations in Electrolyte Solution

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ABSTRACT

This study aims to analyze the performance of aluminium-air batteries using aluminium 1100 and aluminium 5052 anodes using variations of electrolyte solutions NaCl 2M, H2SO4 2M, and NaOH 2M by testing in the form of voltage and current measurements. Voltage and current measurements were taken every 10 minutes for 1 hour and current measurements using a load in the form of a 5W7Ω5J resistor. This study found that with aluminium 1100 anode material if the voltage sorted from highest to lowest according to the variation of electrolyte solution is using NaOH solution (1.44 V), H2SO4 (1.07 V), and NaCl (0.57 V). For the aluminium 5052 anode is a solution of NaOH (1.37 V), NaCl (1.17 V), and H2SO4 (0.80 V). As for the current if sorted, for aluminium 1100 anodes are NaOH solution (23.4 mA), NaCl (10.3 mA), and H2SO4 (0.50 mA). And for the aluminium 5052 anode is a solution of NaOH (24 mA), NaCl (7.44 mA), and H2SO4 (4.50 mA).

***Keyword** : Aluminium – air battery, Aluminium 1100, Aluminium 5052*