

***METAL–AIR BATTERY PERFORMANCE COMPARISON  
USING ZINC (Zn) AND IRON (Fe) ANODES WITH  
VARIATIONS OF ELECTROLYTE SOLUTIONS***

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**Abstract**

*This research aims to analyze the performance of metal-air batteries using iron (Fe) and zinc (Zn) anodes using various electrolyte solutions of 2M NaCl, 2M H<sub>2</sub>SO<sub>4</sub>, and 2M NaOH with tests in the form of voltage and current measurements. Voltage and current measurements are carried out every 10 minutes for 1 hour and for current measurements using a load in the form of a 5W7Ω5J resistor. This research shows that with an anode made of iron (Fe), if the voltage is sorted from highest to lowest according to variations in the electrolyte solution, it is using a solution of NaCl (0.37 V), NaOH (0.06 V), and H<sub>2</sub>SO<sub>4</sub> (0.01 V). . For the zinc anode, it is a solution of NaOH (1.05 V), H<sub>2</sub>SO<sub>4</sub> (0.83 V), and NaCl (0.56 V). Meanwhile, if the current is sorted, for the iron anode it is a solution of NaCl (59.0 mA), H<sub>2</sub>SO<sub>4</sub> (9.8 mA), and NaOH (3.9 mA), and for the zinc anode, it is a solution of H<sub>2</sub>SO<sub>4</sub> (124.3 mA), NaOH (54.4 mA), and NaCl (42.8 mA).*

*Keywords: Metal–air batteries, Zinc, Iron, NaOH, NaCl, H<sub>2</sub>SO<sub>4</sub>*