

***ANALYSING THE IMPACT OF ORGANIC AND INORGANIC  
INHIBITORS ON CORROSION RATE AND STRESS IN  
12 VOLT BATTERIES***

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**ABSTRACT**

*The development of industry is currently progressing rapidly, especially in the automotive field, especially in the automotive field, conventional motorized vehicles use a lot of battery types. There are several problems that often occur in batteries or accumulators, one of which is the occurrence of corrosion on the battery electrode. Corrosion is damage to the specimen caused by a chemical reaction between the specimen and the environment. Corrosion of the battery electrodes can cause a decrease in the voltage on the battery and the service life is too fast. The effects of corrosion can be minimized by the use of corrosion inhibitors. This study aims to determine the effect of using inhibitors with 25% NaNO<sub>2</sub> composition and 25% papaya leaf extract on electrode corrosion rate and voltage for 28 days. The results of this study battery with NaNO<sub>2</sub> inhibitor experienced fluctuations in the decrease in current with the highest current of 5.47 A and the lowest current of 0.21 A. For voltage, it experienced a stable decrease with the highest voltage of 12.78 V and the smallest voltage of 4.43 V. While the battery with papaya leaf extract inhibitor experienced a fluctuating decline with the highest voltage of 13.08 V and the lowest voltage of 7.3 V. For the decrease in current fluctuations tend to rise with the highest current of 7.11 A and the lowest current of 2.82 A. The highest corrosion rate on the battery electrode is on NaNO<sub>2</sub> inhibitor of 15,45 mpy with an inhibitor efficiency of -19.55%. For the lowest corrosion rate on the battery electrode with papaya leaf extract inhibitor of 15,45 mpy with an inhibitor efficiency of -16%.*

***Keywords:*** *Inhibitors, Corrosion Rate, Voltage and Current*