

## **Performance of Graphene as the Corrosion Inhibitor of Magnesium Alloy for Automotive Application**

*Abd Anasghaneem Abd Aziz and Juliawati Alias\**

College of Engineering, University Malaysia Pahang, 26600 Gambang, Pahang, Malaysia

\*Corresponding author: juliawati@ump.edu.my

### ***Abstract***

Magnesium is important in the automotive industrial sector as a lightweight metal in its pure and alloy form. Due to the low corrosion resistivity exhibit by magnesium alloys, their usages are restricted in the industrial environment. To contribute solving this problem ECO-24 asbestos coating and graphene nano-platelets (GNPs) as corrosion inhibitor are used in this research. The alloy corrosion behavior of the alloy was investigated to measure the performance of the coating and the inhibitor in the 3.5 % Sodium Chloride (NaCl) solution. Electrochemical measurement such as potentiodynamic polarization were used to investigate the corrosion resistance of the ten samples. The result demonstrated the coating is able to reduce the corrosion rate of the alloy and the inhibitor is able to bond properly with the coat to reduce the corrosion rate of the AZ91 magnesium alloy respectively.