

# **ANALYSIS OF NICKEL COATING CORROSION RATE ON STEEL PLATE COLD COIL (SPCC) STEEL USING ACID SOLUTION TEST MEDIA**

Dosen Pembimbing, Dicky Adi Tyagita, S.T., M.T.

**Davit Firmansyah**

*Study Program of Automotive Engineering  
Engineering Departement*

## **ABSTRACT**

*Corrosion is a serious problem that must be handled quickly and if it is not handled quickly it can cause financial losses. Corrosion occurs in metal due to contact with the environment (oxygen and water). Corrosion of metal is the most common problem because metal is widely used as a material, for example Steel Plate Cold Coil (SPCC) steel, this material is commonly used to make vehicle bodies, tanks and industrial machines. One way to prevent corrosion is by coating with the electroplating method. This research aims to determine the effect of variations in current and electroplating time on the corrosion rate of SPCC steel with nickel coating. The research method used is experimental, by taking the research object on the corrosion rate value of SPCC low carbon steel material using an acid solution test medium. The results obtained from the research and observation process are that the smallest variation in the corrosion rate value is found at a current variation of 3 amperes. and a coating time of 10 minutes with a weight loss of 0.10 grams with a corrosion rate value of 0.1606 mm/y. Meanwhile, the largest corrosion rate value was at a voltage variation of 3A and a coating time of 20 minutes with a specimen weight loss of 0.37 grams with a corrosion rate value of 0.6426 mm/y. "With this, the higher the current and the longer the nickel electroplating process takes, it may not necessarily be a good corrosion inhibitor, even though the layer mass has the largest value, an even distribution of the nickel layer must be required.*

**Keyword:** *Steel SPCC, Corrosion Rate, Electroplating, Current, Time*