

**ANALYSIS OF THE EFFECT OF VOLTAGE AND TIME ON
THE CORROSION RATE OF BRASS ELECTROPLATING
ON LOW CARBON STEEL SS 400**

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ABSTRACT

“The development of the metal materials industry is now progressing quite rapidly, especially in the use of low carbon steel for automotive and other industrial purposes. However, the main problem that arises when using low carbon steel is corrosion, which is caused by the direct interaction of steel with environmental elements such as air, water, and soil. One way to inhibit such corrosion is by electroplating. Electroplating is the process of coating metal with electric current and certain chemical compounds to transfer metal particles to be coated to the material to be coated. The purpose of this study is to determine the effect of voltage variations and electroplating time on the corrosion rate of SS 400 steel with brass coating metal. The research method used is experimental, by taking the object of research on the corrosion rate value of low carbon steel material SS 400. The results of research and observations made by researchers are that the best variation is found in the voltage variation of 10V and a coating time of 20 minutes with a weight loss of 0.03 grams with a corrosion rate value of 1.094 mg / dm²day. While the most weight loss is in the variation of 6V voltage and 10 minutes coating time with a specimen weight loss of 0.08 grams with a corrosion rate value of 2.916 mg/dm²day. With this, the higher the voltage and the longer the time of the brass electroplating process can inhibit the corrosion rate and the smaller the corrosion rate value obtained.”

Keywords: *Low carbon steel SS 400, Corrosion Rate, Electroplating.*