

***EFFECT OF VARIATION HOLDING TIME CORROSION RATE OF
ALUMINIUM COATING ON ASTM A36 STEEL USING HOT DIP
ALUMINIZING METHOD***

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ABSTRACT

ASTM carbon steel is a material that is needed by humans in the industrial world to support their daily needs, especially in the automotive industry. hot dip aluminizing is a metal plating process using aluminum by dipping steel into molten aluminum. The purpose of this coating process is to increase the oxidation resistance of ASTM A36 steel at a temperature of 700 ° C. The purpose of this study was to determine the effect of holding time variations on the corrosion rate and microstructure of ASTM A36 steel. This study on specimens that were not treated with hot dip aluminizing and variations in holding time, the highest corrosion rate was 4.67×10^3 mmpy, at 40 days. , specimens with hot dip aluminizing treatment and a holding time variation of 20 minutes is 3.3×10^3 mmpy, at 8 days the holding time is 40 minutes of 2.94×10^3 mmpy, at 8 days and the holding time is 60 minutes of 2.65×10^3 mmpy. 8 days. The microstructure results show that the iron oxide formation is formed on the surface of the steel which is not coated with aluminum. Aluminum in the intermetallic phase of Fe-Al on the steel surface supplies the protective formation of Al_2O_3 . This layer is very protective to prevent oxygen diffusion into the steel so that it can protect the steel during the oxidation process.

Keywords: Variation, holding time, corrosion rate, microstructure, hot dip aluminizing of low carbon steel A36.