

**Effect of Pretreatment Variations on Hardness Value and Paint Thickness
Values in ASTM A36 Steel**

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ABSTRACT

Powder coating is a method of coating a material with a powder material using a spray gun. The purpose is to slow down the rate of corrosion. The quality of the coating is influenced by the pretreatment process, which is the initial treatment process on the material before it is coated. Pretreatment aims to remove dirt and oil that adhere to the material using NaCl and Phosphoric Acid chemical fluids. In this study, two tests were used, namely thickness and hardness tests. Phosphate acid and NaCl pretreatment were used to improve the quality of powder coating on steel. The results of the study showed that phosphate acid pretreatment was more effective than NaCl pretreatment. This is due to the acidic properties of phosphate acid, which can erode the oxide layer on the surface of the steel, making the surface of the steel more rough and porous. This can improve the adhesion of the paint, so that the paint can adhere more strongly and form a thicker layer. In addition, the acidic properties of phosphate acid can also make the paint layer more compact and dense, making the paint more resistant to scratches.

Keywords: *phosphoric acid pretreatment, NaCl pretreatment, powder coating paint*