THE EFFECT OF VARIATION IN POWDER COATING OVENING TEMPERATURE ON CORROSION RATE ON STEEL ASTM A36

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ABSTRAK

Powder coating is one of the effective metal coating methods to prevent corrosion, but the success of this coating is highly dependent on the drying or curing process. In this study, ASTM A36 steel was powder coated and dried at three variations of oven temperatures, namely 100°C, 150°C, and 200°C. After the drying process, the specimens were immersed in sulfuric acid solution (H_2SO_4) for 15 days to test corrosion resistance. The results of the study showed that the higher the oven temperature, the lower the corrosion rate. At a temperature of 100°C, the corrosion rate reached 0,0369 mm/y, while at 150°C it dropped to 0,0085 mm/y, and at a temperature of 200°C it became the lowest at 0,0028 mm/y. From the results of visual observations, it was also seen that the specimens dried at a temperature of 200°C experienced the least surface damage. Results of Conclusion, higher oven temperature can improve the quality of coating layer and corrosion resistance. This research is expected to be a reference for industry in determining the optimal drying temperature in powder coating process, especially for ASTM A36 steel.

Keywords: *Powder coating, oven temperature, corrosion, ASTM A36 steel, sulfuric acid.*