



**STUDY ON DIFFERENCE TYPES OF POWDER PROTECTIVE  
COATING EFFECT ON MILD STEEL**

**ILEAS BIN IBRAHIM**

**(2000338057)**

Date

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**Faculty of Mechanical Engineering  
Universiti Teknologi MARA (UiTM)**

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## **ABSTRACT**

To study the effect of different types of powder protective coating Epoxy (EP), Epoxy-Polyester (MP), Polyester (PSA) on mild steel. The study of the effect is to better understanding the performance of each powder protective coating selected in term of corrosion rate.

One method to obtain the corrosion rat is by using electrochemical impedance Spectroscopy (EIS). The results of the corrosion rate are plotted in Nyquist Plot.

From the result, epoxy-polyester (Hybrid) powder coating shown the best result compared to the others two. From the theory of EIS, purely undamaged coating will show a vertical straight line of the impedance.

In order to prove the results obtain from the EIS analysis of result, salt spray process to the specimen have to be done. And from the result of salt spray process proven that epoxy-polyester (MP) is the best powder protective coating. It also shows less blistering near the scratches area. From the visual inspection the epoxy-polyester (MP) specimen still give best surface and the cross sectional (scratches) open area are less increase compared than others two under the time range of 48 hours, 96 hours and 144 hours.

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# CHAPTER 1

## INTRODUCTION

### 1.0 Introduction of the Project

Corrosion is a phenomenon that contributed major losses in materials, energy and money because it leads to the increased demands in maintenance and replacing loss, of product and production. There are many forms of corrosion thus also many ways to prevent and fight the corrosion to occur. Coating is an ideal protective method to prevent corrosion, which is divided into 2 categories; (1) powder and (2) liquid. Through this project, I have done a study on selected powder protective coating.

The development of powder protective coating was at first in the early 1970's, which the powder coating industry had a limited number of solid resin systems based on the powder formulation. Consequently, the ability of the powder protective coating to meet the diverse needs of the finishing industry was also limited. Because of the increased concern over VOC's emission, worker safety and energy costs, the use of the powder protective coating regained the popularity until the powder protective coating represented 8% of coating used in the finishing industry