

**PENGARUH VARIASI JUMLAH LAYER POWDER COATING  
DENGAN BASE COAT IRON PHOSPHAT PADA BAJA  
ASTM A36 TERHADAP LAJU KOROSI**  
(*THE EFFECT OF VARIATIONS IN THE NUMBER OF LAYER POWDER  
COATING WITH IRON PHOSPHAT BASE COAT ON ASTM A36  
STEEL ON CORROSION RATE*)

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***ABSTRACT***

The current advances in science and technology have resulted in the need for materials in the manufactur sector which affected the choice of various kinds of suitable materials. The use of metal ASTM A36 steel metal was one of the options used in the automotive field. Furthermore, that metal users anticipated damage to metal, especially in corrosion. There were many factors caused by corrosion, one of the caused was the corrosive media (NaCl and HCl). Corrosion itself could not be eliminated, but the rate could be reduced. One of them is by coating metal using *powder coating*. *Powder coating* is a type of coating that uses powder paint and utilizes an electric current to coat the metal. This research was conducted in PT Manufacture Dynamic Indonesia and Laboratorium Mesin Otomotif Politeknik Negeri Jember. The method used in this research was an experimental method with the dependent variable of the corrosion rate and the independent variable was the number of *layers* of one, two, and three *layers* of *powder coating*. This research use a corrosive medium of NaCl solution with pH 6 and HCl 25%, 50%, 75%, and 100%. However, from several variations in the value of the *layer* variations, the results showed that for the NaCl solution, there was no corrosion or no specimen could be shown to be strong against the NaCl solution. For HCl media, the lowest corrosion rate results were obtained on the 3-layer layer, namely 44.41 mpy on 25% HCl, 34.75 mpy on 50% HCl, 160.54 mpy on 75% HCl, and 120.54 mpy on 100% HCl. The conclusion of this research was that the test specimen NaCl corrosive media could withstand corrosion attacks, while for HCl corrosive media, the best results were corrosion resistant in three layers and the worst in one layer.

Keywords: Powder coating, Iron Phosphat, Corrosion rate, Steel ASTM A36