ABSTRACT

In this research covers the extraction of silica sand from the sand Bancar to obtain high purity with SiO$_2$ and manufacture composite PANi/SiO$_2$. Synthesis of composite PANi/SiO$_2$ is done by using the method of in situ polymerization. Composite PANi/SiO$_2$ mixed into paint then coated on steel SS304 type to serve as anti-corrosion coatings. Comparison of the concentration of SiO$_2$ : PANi composite that is 70 : 30, 80 : 20, and 90 : 10. Steel SS304 type that has been tested using the method of corrosion properties of polarization. The topography and morphology of surface after corrosion test observed using SEM and EDX. Based on a test of Polarization and the calculation of corrosion rate shows a composite PANi/SiO$_2$ with 70 : 30 ratio has the most excellent corrosion resistance among other composite. SEM observations indicate the type of corrosion is evenly formed (uniform corrosion).

Key Word: Polyanilin (PANi), SiO$_2$, in situ polymerization, corrosion
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