Pemanfaatan batang secang (Caesalpinia Sappan L) sebagai inhibitor korosi terhadap baja karbon(API 5L GR.B) di dalam lingkungan 3.5% NaCl = Utilization of secang hearthwood (Caesalpinia Sapp L) as a green corrosion inhibitor on carbon steel (API 5L.Gr B) in 3.5% NaCl environment

Kaban, Erol Efraim, author

Abstrak

Tesis ini untuk mempelajari pengaruh ekstrak batang secang (caesalpinia sappan l) sebagai inhibitor korosi ramah lingkungan terhadap baja karbon API 5L Gr B di lingkungan 3.5% NaCl. Metode pengujian dilakukan dengan Linier Polarisasi dan EIS (Electroscopy Impedance Spectroscopy). Ekstrak batang secang dapat menurunkan laju korosi sampai dengan efisiensi sebesar 53.18% berdasarkan hasil pengujian polarisasi dan efisiensi sebesar 84.64% sesuai hasil pengujian EIS. Efisiensi inhibitor paling efektif dihasilkan pada konsentrasi 2.0 ml/400 ml NaCl. Dari hasil pengujian kinerja inhibitor berkurang seiring dengan kenaikan temperatur larutan ekstrak secang. Inhibitor merupakan tipe campuran (mixed inhibitor) dengan kecenderungan lebih dominan ke arah katodik. Hasil evaluasi menunjukan fenomena mekanisme absorbsi molekul inhibitor secang terjadi secara fisika (physicasorption) berdasarkan model Langmuir Isother.

.....This thesis is to investigate secang hearthwood extraction (caesalpinia sappan l) as a corrosion inhibitor on carbon steel metal (API 5L Gr B) in 3.5% NaCl environment. This research utilize polarization linier and EIS (Electrochemical Impedance Spectroscopy) for the measurement method. Secang extraction is adequate to reduce corrosion rate until efficiency of 53.18% based on polarization measurement and efficiency of 84.64% as EIS measurement result. The most effective concentration of inhibitor reducing the corrosion rate is reached at 2.0 ml/400 ml 3.5% NaCl. Investigation show inhibitor efficiency will decrease as temperature increasing. Polarization study indicate secang is mixed type inhibitor, with predominant cathodic effectiveness. As the evaluation, the phenomena of inhibitor molecule adsorption is physicsorption mechanism and obeys Langmuir Isotherm model.