UNIVERSITI TEKNOLOGI MARA

INVESTIGATION OF SUBSTITUENTS EFFECT ON THE INHIBITIVE PROPERTIES OF SCHIFF BASE COMPOUNDS

AHMAD SHALABI MD. SAURI

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ABSTRACT

A series of the acyclic Schiff base compounds, namely, *N,N'-dibenzylideneethane-1,2-diamine* (baen) and their methyl, hydroxyl and chloro derivatives were successfully synthesized. They were characterized using the elemental analyzer, Fourier transform infrared spectroscopy, ^{1}H and ^{13}C nuclear magnetic resonance spectroscopy.

The effectiveness of these compounds as the acidic corrosion inhibitor was measured using polarization, linear polarization resistance and electrochemical impedance. The steel panels were used as the specimens. The data obtained indicate that the inhibition efficiency increases from 60.42% to 80.76% in the presence of the substituents on the benzene rings.

The presence of these substituents had facilitated the adsorption of the Schiff base molecules onto the steel surfaces through inductive and resonance effects. The adsorption behaviour of these molecules was well described based on Langmuir adsorption isotherm. The investigated Schiff base compounds were adsorbed uniformly as the protective monolayer through the physorption process.

CANDIDATE'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

In the event that my thesis be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree and agree to be subjected to the displinary rules and regulations of Universiti Teknologi MARA.

Name of Candidate	Ahmad Shalabi b Md. Sauri
Candidate's ID No.	2006137449
Programme	Master of Science (AS 780)
Faculty	Faculty of Applied Sciences
Thesis Title	Investigation of substituents effects on the inhibitive properties of Schiff base compounds
Signature of Candidate	.....
Date	6 / 7 / 2010

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