

**CORROSION INHIBITION OF CARBON STEEL USING SCHIFF  
BASE LIGANDS IN 1.0 M HYDROCHLORIC SOLUTION**

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## ABSTRACT

### STUDY OF CORROSION INHIBITOR USING SCHIFF BASE LIGANDS ON CARBON STEEL IN 1.0 M HYDROCHLORIC SOLUTION

Two Schiff base compounds namely 4,4'-(1E,1'Z)-(hexane-1,6-diylbis(azan-1-yl-1-ylidene))bis(methan-1-yl-1-ylidene)diphenol as SB1 and 2-(4-hydroxybenzylidene amino)-2-(hydroxymethyl)butane-1,4-diol as SB2 were derived from appropriate amine and aldehydes have been synthesized in ratio of 1:2 in ethanolic solution. The structures of the Schiff bases are investigated using  $^1\text{H}$  NMR spectroscopy and FTIR spectroscopy. Results obtained from all characterization methods are closely matched with the theoretical values. It can be suggested that the required products of SB1 and SB2 have been successfully synthesized. Inhibition effect of two Schiff bases SB1 and SB2 as corrosion inhibitors on carbon steel in 1.0 M HCl solution has been studied using weight loss method. The result of investigation showed that all two compound act as good corrosion inhibitor. Inhibition efficiency increased with increasing concentration of inhibitors with SB2 exhibited the highest inhibition efficiency at 51.61% in concentration  $3 \times 10^{-5}$  M. Substituent of methyl and hydroxyl group on the benzene ring increases the inhibition efficiency. The decreasing efficiency of Schiff bases in the study could be noted as SB2 > SB1 accordingly at higher concentration.