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## Assessment of electrochemical behaviour for X65-steel: part A: OCP and PDP

## Qhatan A. Yousif<sup>1</sup>\*, Adel A. Al-Zhara

<sup>1</sup>Department of Chemistry, College of Science, University of Al-Qadisiyah, Al-Qadisiyah, Iraq

**Abstract:** The adsorption of sodium diethyl dithiocarbamatetrihydrate (NaDDCT) and 3,6diamino-10-methylacridin-10-ium chloride (DAMAC) inhibitors on X65-steel in 0.05M  $H_2SO_4$  is investigated using electrochemical techniques. The polarization curves and the open circuit potential results obtained indicate that NaDDCT and DAMAC compounds behave as mixed type inhibitors. The results show the efficiency of corrosion inhibition increases with corrosion inhibitor concentration and also as a function of the structure of the inhibitor. The adsorption isotherms are found to obey Langmuir's adsorption isotherm with high correlation values. The effect of temperature is studied on the corrosion rate in the presence of  $1 \times 10^{-3}$ M of NaDDCT and DAMAC inhibitors over the temperature range 298.15K to 318.15K and the activation energy value, adsorption equilibrium constant and free Gibbs energy of adsorption of corrosion inhibitor for X65-steel.

**Keywords:** Corrosion inhibition, X65-steel, corrosion, open circuit potential, inhibitors,Langmuir adsorption.

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