

## ISOXAZOLINE DERIVATIVES AS CORROSION INHIBITORS FOR MILD STEEL IN ACID MEDIA

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### ABSTRACT

Inhibition of corrosion of mild steel in 1M H<sub>2</sub>SO<sub>4</sub> by isoxazolines was studied using gravimetric, electrochemical techniques and scanning electron microscopy. The addition of all the isoxazolines to the corrosive medium reduced the corrosion rate. The effect of temperature on the corrosion behavior of mild steel was studied in the temperature range 303K - 333K for 1M H<sub>2</sub>SO<sub>4</sub> with optimum concentration of the synthesized isoxazolines. Thermodynamic parameters were also calculated to know the mechanism of corrosion inhibition. Polarization studies showed that all the isoxazolines function as mixed inhibitors but predominantly act as anodic inhibitors. The percentage of iron in the corrodent solution was determined by atomic absorption spectroscopy. The protection of mild steel specimens by isoxazolines was further well supported by scanning electron microscopy and energy dispersive X-ray spectroscopy (SEM-EDX) analysis.

**KEYWORDS:** Corrosion Inhibition, Electrochemical Measurements, Isoxazolines, Mild Steel, Adsorption