

## Abstract

Corrosion processes are responsible for huge losses in the industry. This deterioration of components results in loss of plant efficiency, total shutdown and aggressive damage in industries. Though organic, inorganic and mixed material inhibitors were used for a long time to combat corrosion, the environmental toxicity of inorganic corrosion inhibitors has prompted the search for organic corrosion inhibitors. In the search for this, the present study aims to investigate the inhibition action of silicone oil and their protective performance for aluminium alloy in 3.5% NaCl solution using electrochemical tests. Weight loss, corrosion rate, inhibition efficiency and potentiodynamic polarisation techniques were used in this study. The aluminium alloy samples exposed to the inhibitor showed a lower corrosion rate values and excellent polarisation resistance as compared with the corrosion rate samples without inhibitor. The corrosion inhibition rate increases with increasing the concentration of the silicone oil. The adsorption isotherm was confirmed by Langmuir adsorption isotherm.

**Keywords:** [silicone oil](#), [inhibition](#), [corrosion](#), [corrosion rate](#), [aluminium alloy](#)