Principles of metallic corrosion are discussed in the first chapter. The corrosion characteristics of aluminium and aluminium-base alloys are described in the second chapter. The third chapter gives a review of the corrosion of aluminium in hydrochloric acid and the reported inhibitors for the corrosion of aluminium in diverse aggressive media. The fourth chapter gives a review of the reported uses of substances investigated as corrosion inhibitors for other metals and alloys.

In the fifth chapter observations on the corrosion of Al-57S in hydrochloric acid at room temperature (35°C) are given. Thirty substances have been investigated as corrosion inhibitors. The effect of variables such as hydrochloric acid concentration, inhibitor concentration and time have been investigated. It has been observed that diethylenetriamine is the most satisfactory inhibitor which affords nearly complete protection to Al-57S in 0.5 to 4.0N solutions of hydrochloric acid. Other good inhibitors are Triethylenetetramine, 2-Aminoethanol, Anisaldehyde and Cinnamicaldehyde. It is observed that with most substances the efficiency increases with increase in hydrochloric acid concentration. The mechanism of the action of the inhibitors
has been investigated by polarisation measurement. It is observed that most of the substances are predominantly cathodic inhibitors.

In the sixth chapter the influence of temperature on the performance of inhibitors in 1.0N hydrochloric acid at effective inhibitor concentration is given. Diethylenetriamine is the best inhibitor which affords complete protection aluminium 57S in 1.0N hydrochloric acid in the temperature range 35 to 55°C. Another good inhibitor is triethylenetetramine. It is interesting to note that the efficiency of o-chloroaniline and p-chloroaniline actually increases with the increase of temperature. Activation energy have been calculated in the presence and absence of inhibitors. With thirteen inhibitors, it was found that the activation energy in the presence of inhibitor is less than that in its absence.

The effect of external cathodic and anodic current on the performance of inhibitors in 2.0N hydrochloric acid is given in chapter seven. Anisaldehyde is most effective inhibitor in the absence and presence of external cathodic current. However in the presence of impressed cathodic current several inhibitors become more effective. With Diethylenetriamine, Triethylenetetramine, 2-Aminoethanol the protective current decreases with inhibitor concentration but with Anisaldehyde minimum current is needed at optimum