# CHAPTER (I)

# Introduction

Corrosion can be defined in many ways. The most preferred one in literature is the loss of useful properties of a material as a result of its chemical or electrochemical reaction with the environment. The corrosion specialist is concerned with the study about the corrosion mechanism through which a better understanding is obtained of the causes about corrosion and the available means for preventing or minimizing damage.

Corrosion as a spontaneous process may occur predominantly without the application of an external current. A distinction is made between chemical, biochemical and electrochemical corrosion of metals. Chemical corrosion of metals is a spontaneous destruction governed by the laws of ordinary heterogeneous chemical reactions. Biochemical corrosion or biocorrosion, is caused by the vital activity of various micro-organisms using a metal as a culture medium or evolving products which attack the metal. Electrochemical corrosion is encountered more frequently than other types of corrosive destruction and is most dangerous to metals. It is governed by the kinetics of electrochemical reactions. Its rate can be determined on the basis of Faraday's law.

According to the mode of destruction accompanying electrochemical corrosion, a distinction is made between general corrosion, affecting the entire surface of a metal, and local corrosion, confined to definite parts of the metal surface. In the latter case corrosion may result in stains (stain corrosion) or pits (pitting corrosion). This corrosion may involve grains of a single component of