



### **WET OR ELECTROCHEMICAL CORROSION**

It occurs under the following conditions:

- When two dissimilar metals or alloys are in contact with each other in the presence of an aqueous solution or moisture.
- When a metal is exposed to varying concentration of oxygen or any electrolyte.

Under the above condition, one part of the metal becomes anode and another part acts as cathode, which acts as galvanic or concentration cell. The anodic part always gets corroded.

### **TYPES OF ELECTROCHEMICAL CORROSION**

The electrochemical corrosion is classified into the following two types:

- (i) Galvanic (or Bimetallic) Corrosion
- (ii) Differential aeration or concentration cell corrosion.

### **Galvanic Corrosion:**

When two dissimilar metals (eg., zinc and copper) are electrically connected in the presence of an electrolyte, in this process, the more active metal (with more negative electrode potential) acts as an anode while the less active metal (with less negative electrode potential) acts as cathode.

In the above example, zinc (higher in electrochemical series and higher negative potential value  $-0.76V$ ) acts as anode and is attacked by corrosion; whereas copper (lower in electrochemical series and lower negative potential value  $+0.34V$ ) acts as cathode and is not attacked by corrosion.

Thus it is evident that the corrosion occurs at the anode metal; while the cathodic part is protected from the attack.

Example: (i) Steel screws in a brass marine hardware (ii) Steel pipe connected to copper plumbing.

Dr.M.Manjuladevi  
Chemistry

Dept of