

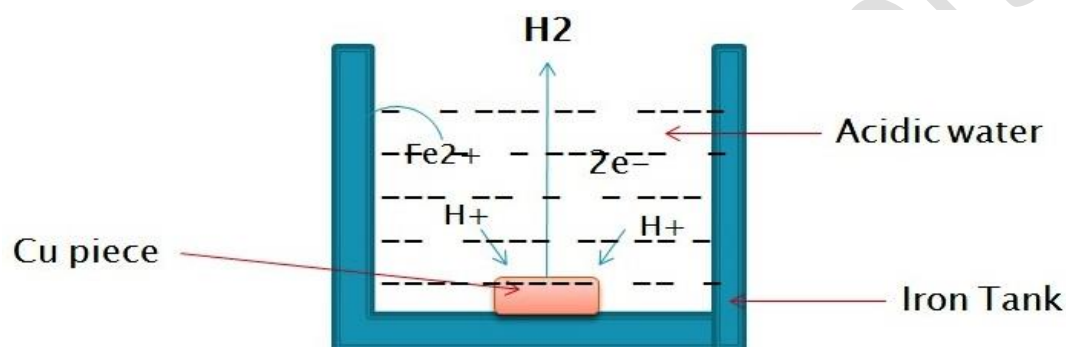
Wet corrosion and its mechanism

Mechanism of Wet Corrosion

Wet corrosion takes place due to electrochemical setup formed between two different metals in presence of electrolytic solution like water, acid solution etc. Wet corrosion can be of two types

- A. Hydrogen Evolution Mechanism
- B. Oxygen Absorption Mechanism

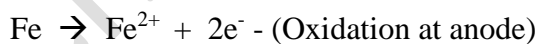
A. Hydrogen Evolution Mechanism



In this type of mechanism H_2 gas is evolved due to chemical reactions.

Mechanism

1. Consider the iron tank contain acidic water. The iron tank acts as an anode.
2. In this tank Cu piece is inserted. This copper acts as cathode.
3. When corrosion starts, the oxidation of Fe from iron tank takes place
4. The Fe is oxidized to Fe^{2+}



5. These electrons are captured by H^+ ions present in acidic water.



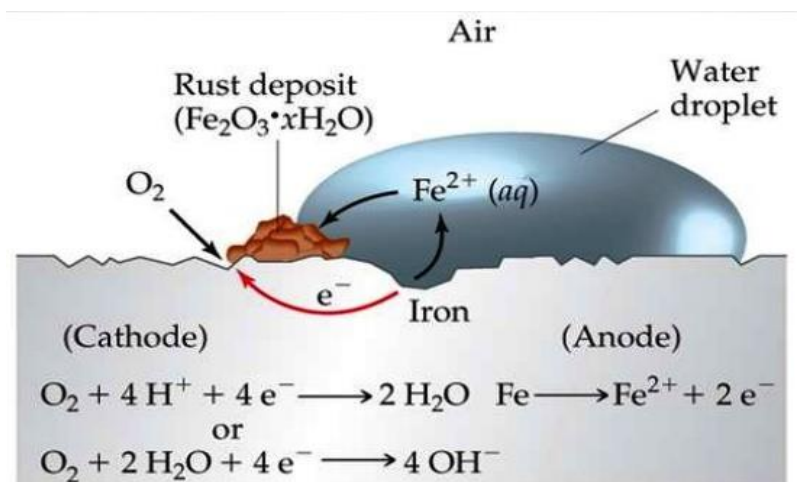
6. Similarly, two H atoms combines together to evolve H_2 Gas.



In this way the process of corrosion in which H_2 is evolved.

B. Oxygen Absorption Mechanism

In this type of mechanism O_2 gas is absorbed due to chemical reactions.



1. A water droplet is placed on iron surface. This forms oxide layer on surface of metal.
2. The oxide of iron covers the surface of the iron.
3. The small scratch on the surface creates small anodic area and rest of the surface acts as cathodic area.
4. At anode oxidation of iron (Fe) takes place into Fe^{2+}
 $Fe \rightarrow Fe^{2+}$ - (oxidation at anode)
5. Similarly at cathode water molecule and oxygen can absorb electrons.
 $O_2 + H_2O + 2e^- \rightarrow 2OH^-$ (Reduction)
6. The overall reaction takes place during this corrosion process is absorption of oxygen.
 $Fe + O_2 + H_2O \rightarrow Fe^{2+} + 2OH^-$ or $Fe(OH)_2$