



19CH101- ENGINEERING CHEMISTRY

Unit-2 CORROSION AND ITS CONTROL

Control of corrosion by modifying the metal

1. By selection of the metal

Selection of right type of metal is the main factor for corrosion control. Thus, noble metals are used in ornaments and in surgical instruments.

2. By using pure metal

Pure metals have higher corrosion resistance. Even a small amount of impurity may lead to severe corrosion.

3. By alloying

Corrosion resistance of many metals can be improved by alloying. For example, stainless steel containing chromium produce a coherent oxide film, which protects the steel from further attack.

4. By proper design

Some of the important rules for designing, which must be observed are given below.

i) Avoid galvanic corrosion

If two different metals are joined, galvanic corrosion will occur. In such a case galvanic corrosion is prevented by

- Selecting the metals as close as possible in the electrochemical series.
- Providing smaller area for cathode and larger area for anode
- Inserting an insulating material between the two metals.

ii) Drainage affects corrosion

Tanks and other containers must be designed in such a way that, the whole of the liquid should be drained off completely.

iii) Avoid sharp corners and bends

Sharp corners and bends should always be avoided, and hence erosion corrosion can be avoided by smooth corners or curved pipe bends .



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iv) by avoiding crevices

Crevices allow moisture and dirt, which results in increased electrochemical corrosion. This can be prevented by filling the crevices with a filler.

Example : Riveted joints produce crevice corrosion, so welded joints are preferred.