Coxyosion Cossosion is the process of gradual deterioration of metal. its sustace due to the unwanted chemical or electrochemical interaction of metal with environment.

Cause of Coxxosion

Oxe of Metal Thesmodynamically + Energy Stable)

Metallusgical elevation

Puse metal thesmodynamically unstable) evolution, in the elsenic of

(i) exagen absolution

Envisonment-

Cossoded metal HOST de stable (comparatively more stable)

Types of Cossosion 1 1/12 of Electrockenical Cossesion

Doy chemical corrosion. and under wet or moist conditions 11- generally takes place in through bormation of shortabsence of moistage.

2M+no2 > 2M+2no2-> M2on (i) Separate anodic & cathodic A thin layer of oxide bormed at the surbage of metal can be

- ci) Stable -> Al world so & 20000
- (ii) unstable > Ag, Au Pt

It takes place mostly

- astas
- (ii) oxidation at anodic side
- (iii) of or o2- are bormed at catholic aseas.
- (iv) Dibrusion of metallic of (iii) Volatile -> Mo non-merauje ions 4 bosmation (iv) froposous > and ot corrosion product.

Providing an insulating material but the how many.

Example of electrochemical corrosion

Rushing of iron.

CONVESION IS the PROCESS of gradual deterioration and it missions

Joshife -> 80 Fe2+ + 2e balancins and of sub surkes 241 month

At Cathode

(i) exygen absorption.

(a) in acidic medium: 4H++ 02+ 4e > 2H20

alkaline medium: 2H20+02+407 40H

(ii) Hydrogen evolution, in the absence of o2

(a) in acidic medium: 2Ht + 2e -> Hz

alkaline medium. 2 H2ot 2e -> H2 + 2 oH

Types of Electrochemical Cossosions

1. Galvanic Cossosion.

It takes place when dibbesent metals are in contact

f jointly enfosed to Cossosive atmosphere.

the metal which is higher up in electrochemical series, with more negative electrode Potential will born anode 4 undergo

For enamples, $Zh-cu \Rightarrow Zh$ behaves as anode where oridation + cossission occurs 4 cu behaves as cathode fis protected.

Galvanic corresion can be minimised by a shall (4)

- (i) Avoiding gavanic couple.

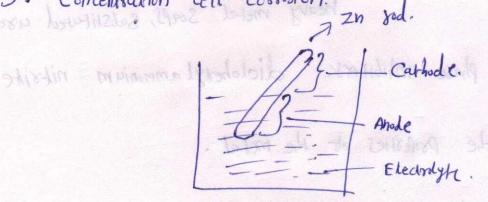
(ii) Providing an insulating material beth the two metals.

2. Pitting corrosion: Morros Hange 2000-2001 Widostory

consider a drop of water resting on the surface of metal - the metal sustace which is covered by drop has low oxygen concentrations 4 acts as an ande. the uncovered metal surface due to high oxyge acts as cathode.

at anode. Fe \rightarrow Fe²⁺ +2e At cathode 1 02+ Heotze -> 20H Fe2++ 20H -> Fe CoH)2 -> Nidahion.

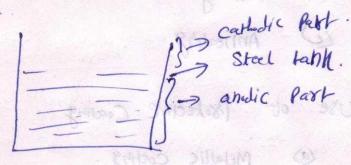
(11) cashelic inhibitory -3. Concentration cell corrosion. Sould Substituted asked



_ Cathode. In -> Zn2++2e 102+H20+ 2e -> 20H Zn CoH) 2 asth

corrosion produces

4. Water-line corrosion.



Factors Inbluencing cossosion Nature of metal

- 1. Pusity of metal.
- 2. Physical State of metal.
- 3. Nature of exide bilm.
- Position of in the Galvanic Sexies
- 5. Relative aska of ande

Nature of environment

Temposapost Humidiry.

Elbect of PH.

. Nature of electrolyte.

Presence of imposines in amosphon

Protective Measures Against Corrosion: () Modification of the environment. (a) Removal of corrosion shmulants. brown of by 02 -> N2H4, Nassoy ett, modernoon marks box acids > neursalized by lime. (6) use of coxosion inhibitors. Amodie inhibitors: - molybdates, Phosphates f (i) chromate). (ii) cathodic inhibitors: - Amines mercaptans heavy metal soaps, substituted usual (iii) Vapous phase inhibitors: - dichoherylammonium nitrite. 102 +12+ 2c -> 20H Modification of the properties of the metal. Shill -(a) alleying 4. Water-line confosion. (b) Relining (c) Annealing Use of Protective Coating. (a) Metallic coering. Factor's Influencing correston (b) Inorganic Coating Mariase of meral (c) Organic Coating, fusity of metal. Hamidit Ellect of PH

Napyxe of electrific

Passence of imposition in a contract

Position of in the Challent C Relative are it as I