CY-517 CORROSION CHEMISTRY

Corrosion Thermodynamics and Kinetics:: Gibbs free energy, Nernst equation, hydrogen electrode, standard hydrogen scale, the oxygen electrode, differential aeration cell ,the emf and galvanic series, liquid junction potentials, reference electrodes, polarization diagrams of corroding metals, influence of polarization on corrosion rate, calculation of corrosion rates.

Corrosion in Different Environments: Atmospheric corrosion, natural and sea water corrosion, corrosion in soils, reinforced concrete corrosion, microbes and biofouling, corrosion in petroleum industry.

Forms of Corrosion: Uniform corrosion, galvanic corrosion, concentration cell corrosion, pitting corrosion, crevice corrosion, filiform corrosion, intergranular corrosion, stress corrosion cracking, corrosion fatigue, fretting corrosion, erosion-corrosion, de-alloying, hydrogen damage, microbial corrosion, cavitation, exfoliation corrosion.

Corrosion Control: Design, material selection, protective coatings, inhibitors, galvanic protection.

Corrosion Testing: Test methods, testing procedures, electrochemical testing, cathodic protection monitoring, monitoring of process plants and other environments, corrosion auditing.

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