

Fundamental Aspects of Corrosion Films in Corrosion Science; 9780306436239; B.D.

Craig; Springer Science & Business Media, 1991; 1991; 192 pages

Corrosion is defined as "an irreversible interfacial reaction of a material (metal, ceramic, polymer) with its environment which results in consumption of the material or in dissolution into the material of a component of the environment" (IUPAC, 2012). From: Understanding Biocorrosion, 2014. Related terms: Anode. Magnesium. Titanium Dioxide. Pitting Corrosion. Corrosion Science and Engineering (Engineering Materials) 1st ed. In addition, the book addresses basic aspects of corrosion science, including the electrochemical mechanism, thermodynamic and kinetic aspects, the use of Pourbaix and Evans diagrams, and various forms of corrosion (from uniform to localised to stress corrosion phenomena); as well as the protection systems adopted to combat corrosion, including inhibitors, coatings and cathodic protection. Such basic knowledge is fundamental to understanding the "corrosion engineering" approach applied to the durability of metals immersed in water, buried in soil, exposed to the atmosphere, used in reinforced concrete. Springer. 2010. 583 p.

Societal Aspects of Corrosion Getting Started on the Basics Charged Interfaces A Brief Review of Thermodynamics Thermodynamics of Corrosion: Electrochemical Cells and Galvanic Corrosion Thermodynamics of Corrosion: Pourbaix Diagrams Kinetics of Corrosion Concentration Polarization and Diffusion Passivity Crevice Corrosion and Pitting Mechanically Assisted Corrosion Corrosion Inhibitors Corrosion Under Organic Coatings AC Impedance High-Temperature Gaseous Oxidation Selected Topics in Corrosion Science Beneficial Aspects. Atmospheric corrosion progression characterisation on metal substrates is a major problem in the field of corrosion science and Non-destructive Evaluation (NDE). A laser profilometry has been used to characterise the corrosion on the mild steel plate at a low cost and high resolution. Four mild steel samples have been measured which exposed to the... Professor Brian Cherry was always been a firm believer in understanding first the fundamentals of any aspects of corrosion science, then the mechanisms, before embarking on the engineering of solutions to the management of materials corrosion. So it was with steel-reinforced concrete. This paper endeavours to walk a reader through the fundamental a