

## Pile corrosion

Piles are structures used to transfer loads from superstructure to the subsurface strata. When the subsurface stratum is water based or if we deal with a hydraulic structure, the piles are to be driven into water and under water strata. Piles used in underwater structures are often subjected to corrosion. There is no absolute way to eliminate all corrosion; but corrosion protection measures are employed to control the effect of corrosion. Corrosion protection can be in different ways according to the environment and other factors. Forms of corrosion protection include the use of inhibitors, surface treatments, coatings and sealants, cathodic protection and anodic protection. The control measures explained in this are Protective coatings, cathodic treatment and application of Fibre Reinforced Polymer (FRP) Composites.

Corrosion is the destruction of metals and alloys by the chemical reaction with the environment. During corrosion the metals are converted to metallic compounds at the surface and these compounds wear away as corrosion product. Hence corrosion may be regarded as the reverse process of extraction of metals from ore.

Corrosion and in particular corrosion of metal structures, is a problem that must regularly be addressed in a wide variety of areas, for example, in the automotive industry, metal parts are often plated or coated to protect them from road salt and moisture in hopes of increasing their longevity. Indeed, many traditional metal parts are currently being used with polymeric components, which are not only lighter but also more cost effective to produce. But these are generally impervious to electrochemical corrosion often experienced by metals. Even with the proper selection of base metals and well-designed systems or structures,

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there is no absolute way to eliminate all corrosion. Therefore, corrosion protection methods are used to additionally mitigate and control the effects of corrosion. Corrosion protection can be in a number of different forms/strategies with perhaps multiple methods applied in severe environments. Forms of corrosion protection include the use of inhibitors, surface treatments, coatings and sealants, cathodic protection and anodic protection.