Review on Design of Sacrificial Anodes

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ABSTRACT

Corrosion process is both electrical and chemical, that is, electro - chemical process. Oneof methods of protecting against corrosion is use of galvanic anode such as zinc(less noblemetals). This anode corrodes preferentially, liberating electrons known as Sacrificial anodecathodic protection Its advantages are simplicity, cost savings, availability of wide range of anodes and low maintenance,Disadvantages with the SACP are requirement of periodicreplacement of anodic metal due to its dissolution in the process, limited control over the system and driving voltage is low and may be inadequate to provide full cathodic protection in all situations, factors need to take into account were requirement of sufficient current, minimizing the acidification anode anode, avoid hydrogen embrittlement., in order to achieve this Various design parameters are suggested such as - Maximum ratio of mass of galvanic anode metal (g) to the surface area of galvanic anode metal (cm2) , Minimum calculated pH throughout the service life of galvanic anode , Minimum porosity of encapsulating mortar , Critical pore size , Material of tie wire , Minimum distance between tie wires (if more than 1 tie wire is used) , The connection between anode metal and tie wire need further examination Therefore, this paper reviewed the published literature to Study the effect of increasing conductivity encasing mortar using red mud material in improving performance of galvanic anode.To identify Parameters which influence anode performance like mass/surface area and spacing and design them in critical locations such that maximum service life is available,Design of tie bars.To check if the designed anode satisfies the required levels of depassivation set by ISO-EN 12696.

Keywords: *Sacrificial anode cathodic protection, conductive encasing mortar, critical location, depassivation criteria, tie wires.*