

DESIGN CRITERIA FOR CONTROLLING STRESS CORROSION CRACKING (SCC) IN A MARINE APPLICATION.

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Stress Corrosion Cracking (SCC): This is an environmentally assisted premature failure of materials resulting from a combined action of stress and a corrosive environment (Corroder).

This problem is highly dissastrous as it can happen rapidly and unpredictably leading to a catastrophic failure of structures,pressure vessels,ships,pipeworks.

The Stress environment is as a result of residual stresses introduced during fabrication , use or application of components on materials.

The Corrosion environment is the permanent service environment i:e Marine,seawater or a temporary one caused by operations such as cleaning of the system which can leave residue.

Some materials (alloys) are more susceptible than others ,therefore strict adherence to the Material-Environment pair selection is important.Poor selection will lead to rapid decrease in failure time with increasing applied stress.This has been experimented and criteria for material-environment pair design is presented in this paper.

Selection of materials,heat treatment method,fabrication methodology,loading path assesment are presented in this paper as to reduce the potential for stress corrosion cracking (SCC) of a material in a marine environment.