



Mitigation of Stress Corrosion Cracking

Failure Prevention in Harsh Environments

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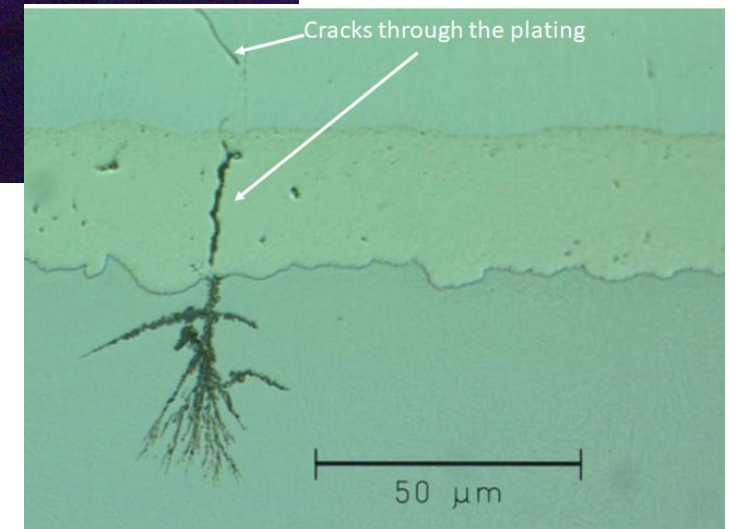
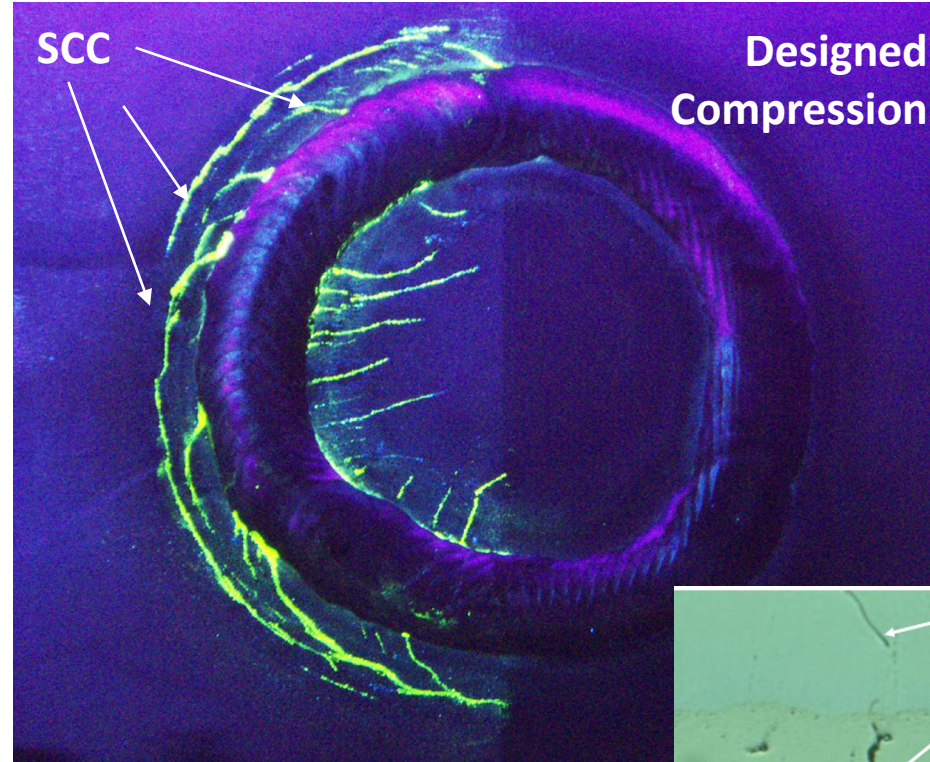


Detrimental Effects of SCC

- Caused by combined effects of corrosive media and tensile stress
- Threshold stress levels may be low
- Both stainless and high strength steels are prone to stress corrosion cracking (SCC)

Consequences

- Potential catastrophic failure
- Premature retirement of components
- Frequent Inspection

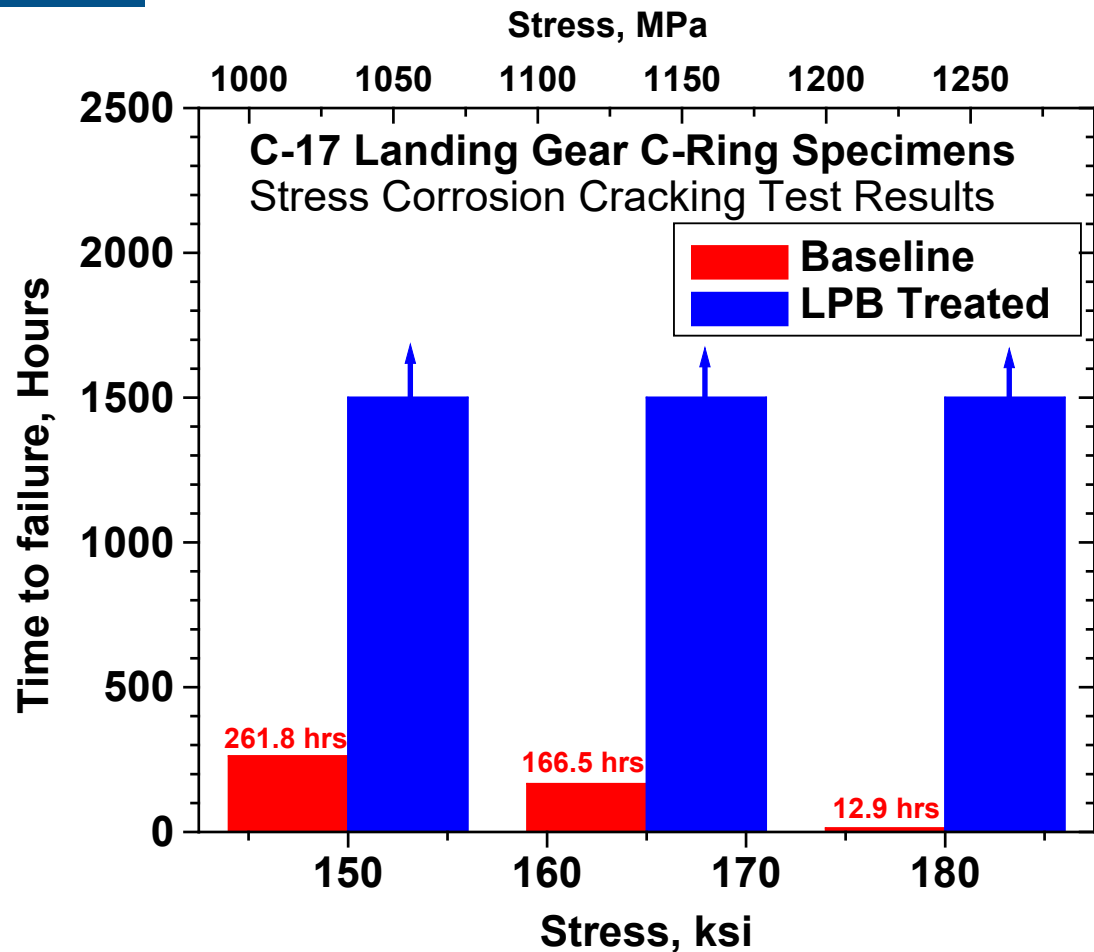


Common Treatments

- Minimize exposure of corrosive medium to SCC-prone components in design or operations – **changing design or operations could be cost-prohibitive**
- Frequent inspection for corrosion and cracking damage – **very difficult for components with low damage tolerance; limitations on frequency of inspection; components may not be easy to inspect once they're in place**
- Use of protective coatings – **most coatings are not environmentally friendly and local breakdown of coatings would exacerbate the problem**
- Replace parts frequently – **Increases total ownership costs**

These treatment methods aim to minimize effects of stress corrosion cracking with varying degrees of success.

Designed Compression



Successful Applications

- Landing Gear
- Nuclear Container Closure Welds
- Oil Retrieval Couplings
- Hydraulic Fracking Pumps

Benefits

- Extend Component Life
- No Material Replacement
- No Redesign
- Improve Damage Tolerance
- Reduce Risk of Failure
- Increase Cost Savings

Reduce Replacement and Material Costs

A Cost-Effective Solution to Mitigate the Effects of Corrosion Pitting