

## **Behaviour of stress corrosion cracking of austenitic stainless steels in sodium chloride solutions**

### **Abstract**

Stress Corrosion Cracking (SCC) is an environmentally well-known as a failure caused by exposure to a corroding while under a sustained tensile stress. SCC is most often rapid, unpredictable. Failure can occur in a short time as a few hours or take years and decades to happen. Most alloys are liable to SCC in one or more environments requiring careful consideration of alloy type in component design. In aqueous chloride environments austenitic stainless steels and many nickel based alloys are common to perform poorly. Stress corrosion cracking (SCC) of austenitic stainless steels of types 316 was investigated as a function of applied stress at room temperature in sodium chloride solutions using a constant load method. The experiment uses a spring loaded fixture type and is based on ASTM G49 for experiment method, and E292 for geometry of notched specimen. The stress dependence of fracture appearance and parameters of time to cracking, and cracking growth. The results are explained in terms of comparison between the two concentrations of sodium chloride solutions.

### **Keywords**

Austenitic stainless steels; Sodium chloride; Stress corrosion cracking