

## Concurrent Cathodic Disbonding and Microscopy at High Temperatures and High Pressures on Steel Coated Exposed to Seawater

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### ABSTRACT

A new methodology was developed to study *in-situ* the Cathodic Disbondment at High Temperature and High Pressure of Carbon Steel Coated Substrates in simulated seawater. Preliminary tests revealed that pressure has a critical effect on the area of the disbonded material (even when an applied Cathodic Protection was applied to the steel). Simultaneous electrochemical monitoring and *in-situ* video microscopy was used to observe in real time the electrochemical reactions occurring in artificially created holidays in the surface of the steel while immersed in artificial seawater at high temperature and high pressure.

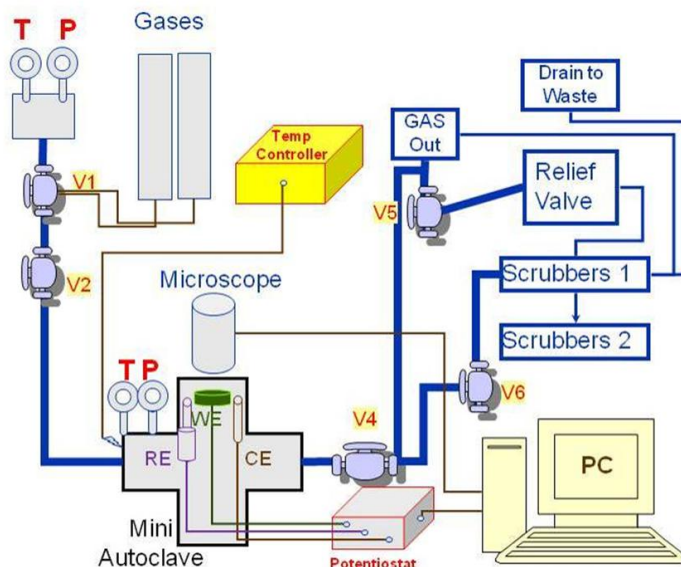


Figure 1. Schematic diagram of mini-autoclave used to study *in-situ* the Cathodic Disbondment at High Temperature and High Pressure of Carbon Steel Coated Substrates in simulated seawater