

# Corrosion Laboratory Testing Services

## Corrosion Testing in Sweet (CO<sub>2</sub>) or Sour (H<sub>2</sub>S) Conditions

- Stirred Autoclave (to 1700 Psi at 450°F)
- Flow Accelerated Corrosion Using Jet Impingement Techniques
- Electrochemical Testing in Glassware and Autoclaves at High Temperature and Pressure
  - Linear Polarization Resistance (LPR), Electrochemical Impedance Spectroscopy (EIS), Electrochemical Noise (ECN, EN)
  - Potentiodynamic, Potentiostatic and Galvanostatic Polarization
- Corrosion Inhibitor Evaluation, Including Critical Concentrations and Inhibitor Persistency
- Corrosion Under Heat Transfer Conditions, Including Electrochemical Capability
- Corrosion in Controlled Low Oxygen Environments (ppb Level)
- Under Deposit Corrosion Evaluation, Including Electrochemical Capability
- Corrosion Under Insulation (CUI)
- Crevice Corrosion and Pitting
- Cathodic Protection Requirements; Galvanic Anode Performance and Qualification
- Stress Corrosion Cracking (SCC); Sulfide Stress Cracking (SSC)
- Acoustic Emission (AE) Capability
- C-Ring, 4-Point Bent Beam, Double Cantilever Beam (DCB)
- Galvanic Corrosion Evaluation
- NACE Standard Tests, including:
  - NACE TM0177 – Sulfide Stress Cracking (SSC); Method B, C and D
  - NACE TM0284 – Hydrogen Induced Cracking (HIC)
- ASTM Standard Tests, including:
  - ASTM G 48 – Stainless Steel Pitting and Crevice Corrosion in Ferric Chloride Solution
  - ASTM G 150 – Critical Pitting Temperature (CPT) of Stainless Steels

## Coatings Testing

- Full Immersion Coatings Evaluation
- Cathodic Disbonding
- Cold Wall Effect Evaluation
- Electrochemical and Acoustic Emission (AE) Monitoring and Evaluation

# Corrosion Research and Testing

Research and Testing Covering a Broad Range of Applications

## Research and Testing Strengths

- Research and Testing Conducted as:
  - Contracts for Specific Client Projects
  - Support for Engineering, Consulting, Expert Witness and Failure Analysis
  - Government, University and Technical Society Sponsored Research
- Innovative Test Methods, Design and Implementation of Specialized Techniques
  - Results More Applicable to Actual Service Environments
  - Avoids Over Conservative Materials Selection
  - Provides Accurate, Rapid Screening and Quality Control

## Experimental Qualifications

- Extensive Experience in Designing and Conducting Corrosion, Cracking and Materials Qualification Experiments
- Unique Corrosion Test Methods to Solve Specific Corrosion Problems
- Flow Effects and Flow Accelerated Corrosion Using Jet Impingement
- Evaluation of Flow Regime Effects and Prediction of Flow Effects on Corrosion
- Corrosion Inhibitor Testing, Critical Inhibitor Concentration and Inhibitor Persistency
- Unique Coating Tests Using Acoustic Emission Techniques
- Unique Testing Methods for Corrosion in Specific Chemical Process Environments
- Fracture Mechanics Testing

## Customized Corrosion Testing

- Specialist in the Design, Operation and Interpretation of Customized Corrosion Test Methods
- Tests Correlated to Specific Process Environments
- Fitness for Service Evaluation
- Flow Tests Applied to Specific Process Systems
- Corrosion Testing Under Controlled Heat Transfer Conditions



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