

# **LAB SUPPORT SERVICES**

## **SERVICIOS DE APOYO DE LABORATORIO**

### **CORROSION TESTING**

1. Thermal Stability
2. **Foaming, Emulsification, & Fouling Tendencies (NOM)**
3. Solubility & Compatibility
4. Wheel Test; Constant Contact, Film Persistency
5. Emulsification & Environmental Compatibility of Corrosion Inhibitor
6. Electrochemical Inhibitor Evaluation, Tafel slopes, Galvanostatic, & Coulometric Measurements
7. Linear Polarization Scan
8. High Pressure, High Temperature 400 °F & 20,000 psi, Rotating Cage Study
9. Methodology Study, Consistometer
10. High Pressure, High Temperature 400 °F & 7,500 psi Capillary Injection System Evaluation
11. Rack Gunking Test
12. Stress Cracking Test
13. Custom Designed Corrosion Test
14. Computer Modelling Profile & Predict Corrosion in Wells; Dr. James D. Garber U. S. L.
15. Organic Acid Analysis; Microbiologically-Induced Corrosion

### **FAILURE ANALYSIS**

Análisis de Fallas

- i. Micro Examination & Photomicrographs via Scanning Electron Microscope
- ii. Macro Examination & Photomicrographs
- iii. Metallurgical & Elemental Analysis
- iv. Mechanical Analysis; Rockwell hardness
- vi. Chemical Analysis; FTIR/Carbon 13
- vii. Deposit Analysis; X-Ray Diffraction

### **Incrustaciones/ Análisis de agua.**

#### **SCALE/WATER TESTING**

1. A.P.I. RP-45 Water Analysis
2. Continuous Scale Wheel Test; NACE
3. Millipore Filter Analysis;
4. Thermogravimetric Analysis; Oil Content
5. AA Evaluation; Inorganic Metals Content, ie. Iron, Barium, etc.
6. Microbiological Identification; Bacteria, Fungus, Bio-mass Plugging
7. Microbiocide Time Kill Studies
8. Phosphate/Polyacrylate Residuals
9. Amine/Organic Content Residuals
10. NPDES Permit; Wastewater Analysis
11. Custom Designed Analyses; Inorganic or Organic

**PARAFFIN/ASPHALTENE OIL TESTING**  
**PRUEBAS DE ACEITE ASFALTENOS/PARAFINA**

1. Cold Finger Analysis, Paraffin Inhibitor Performance Evaluation
2. Percent Paraffin/Asphaltene; GC and Solvent Extraction
3. Paraffin Solvent Performance Evaluation
4. Paraffin Dispersant Performance Evaluation
5. Pour Point Test
6. Cloud Point Test
7. Hot Flask Test; Water Soluble Dispersant Evaluation
8. Inorganic Content in Produced/Refined Oils
9. A.P.I. B.S.&W. Tests

**MISCELLANEOUS TESTING**  
**Pruebas diversas**

1. Fourier Transform Infra-Red Spectrography
2. Brookfield Viscosimeter
3. Scanning Infrared Analysis
4. Synergism of Scale Inhibitors, Dispersants, Microbiocides, and Other Chemicals
5. Gas Chromatograph Analysis
6. Custom Designed Products Formulation

**ENVIRONMENTAL**  
**Ambiental**

- i. LC/LD-50 Aquatic Toxicity Tests
- ii. D.O.T. HM-181 Corrosion Tests; In-Vitro Vial
- iii. Biodegradability Tests; TOC, 28 Day
- iv. Clean Air Act; VOC Discharge
- v. Clean Water Act; Reportable Quantities
- vi. Environmental Impact Statements
- vii. E.P.A., D.O.T., O.S.H.A. Approved MSDS Preparation

**DETERGENT/CLEANERS**  
**Detergentes/Limpiadores**

- i. Customized Cleaner Efficiency Tests
- ii. Discharge Permit Status; T.O.C., T.P.H., T.P.H., C.O.D.
- iii. Phase Separation, Emulsion Tendency
- iv. Coating Stability Tests; Sandwich Corrosion
- v. Total Immersion Corrosion; Plating Tests
- vi. Stress Cracking; Plastics/Elastomers
- vii. MIL-SPEC Tests

## **PRODUCT TESTING**

Pruebas de producto

- i. Compositional Analysis; GC/Carbon 13
- ii. Quality Assurance; FTIR
- iii. Quality Control; p Charts
- iv. Moisture Content; Karl Fischer