



CORMETRICS SERVICES (2016)

Autoclave Testing

Standard test is 90 hour run time, LPR measurements every 30 minutes, final electrode weight loss with documentation of corrosion attack on electrodes. Alternate is to use “Mushroom Cap” coupon for weight loss corrosion rate.

Rotating Cylinder Electrode

Standard test is 20 hour run time with up to two chemical injections and rotation rate adjustment prior to test completion. LPR measurements collected every 10 minutes, final electrode weight loss corrosion rate and documentation of corrosion attack on electrodes.

Test Options:

- Field Brine activated charcoal filtering.
- Partitioning of continuous inhibitor pre-test

Inhibitor Characteristics

TEST
Emulsion Tendency
Foaming Tendency
Dispersability
All Three Tests (Emulsion, Foaming and Dispersability)
High P/T Gunking Test
Atmospheric Pressure Gunking Test

Preference is to use field produced fluids for inhibitor characteristics, costs include consumables and waste disposal. Report will provide comparative results between products.

Wheel Test

Test Type
Continuous
Batch

Final weight loss and visual observations of corrosion attack are reported. Standard test is three day run time in triplicate per chemical concentration and four blanks.

Cyclic Potentiodynamic Polarization

Test design is to investigate the pitting and repassivation of materials. Also used to indicate inhibitor influence on pitting potentials. Test is run in the autoclaves over a two day period. Reporting includes discussion on the open circuit, pitting and repassivation potentials.

Potentiostatic Polarization

Test design is to apply a small potential to the electrode and determine the current response. This technique is used to evaluate materials and can be informative for corrosion inhibitor testing. The technique is combined with the CPP scan to determine the applied potential for the test and is typically run over a three day period.

Zero Resistance Ammeter (Galvanic Corrosion)

Test design is to record current flow and material potentials between dissimilar metals and report on corrosion rate identifying the extent to which one material is anodic to the other. Weight loss corrosion rate are also recorded. The experiment is completed over a four day period in the pressurized autoclaves or over a two day period at atmospheric pressure in the rotating cylinder electrode apparatus.

Pipeline Failure Analysis

Standard failure analysis of a pipe segment will document the as received pipe condition, system description, review of produced water chemistry, modeling flow and water chemistry under operating conditions, XRD analysis of corrosion by-products, discussion on corrosion mechanisms, conclusions and recommendations for follow up activities or improvement to mitigation strategies.

Pipeline Corrosion Assessment

Corrosion assessment of a pipe segment will document the as received pipe condition and extent of corrosion activity. Activity entails splitting and cleaning of sample to allow documentation of corrosion activity. Pipe sample should be less than 2m in length.

Pipeline ILI Comparison

Corrosion assessment of a pipe segment in comparison to ILI inspection data will document the as received pipe condition and extent of corrosion activity in comparison to reported ILI inspection data. Activity entails splitting and cleaning of sample to allow documentation of corrosion activity. Pipe sample should be less than 2m in length.

Crude Corrosivity Testing (ASTM G205)

Three components of crude corrosivity are assessed in reference to ASTM G205 test methodology for transportation of crude oil streams. Wettability via the spreading method, Emulsion Inversion Point and Corrosivity of Brine partitioned from the oil phase with rotating cylinder electrode apparatus are evaluated. Report will categorize the crude characteristics per the ASTM guide for each of the three test parameters. It is a good reference to know the density, total sulfur, TAN and salt content of the crude we can facilitate testing of these parameters.

Wax Dispersant and Solubility Testing

Test design is to compare performance of wax dispersants and solvents with field samples. A ranking of performance characteristics and discussion on the test procedure is reported.

Corrosion Ring Analysis

Report provides, received description, determination of weight loss, general and pitting corrosion rate, comments on type of corrosion activity with photographs of before and after coupon surface. We require installation, removal dates and initial coupon weight.

Miscellaneous

- **XRD Deposit Analysis**
- **Bacteria Testing (serial dilution, hydrogenase, BART)**
- **One day high P/T corrosivity**
- **Short term Acid Solubility test**
- **Custom lab work:**
- **Corrosion Specialist:**