Biofuel Refining Solutions

Stay Ahead of Corrosion Risks

Proactively Monitor Corrosion to Prevent Costly Downtime

Biofuel refining faces unique challenges due to diverse feedstock components like phosphorus, metals, and chlorides, which increases the rate of corrosion on pipe and vessel walls.

Retrofitted refineries for SAF/biodiesel are vulnerable, as they weren't designed for the heightened corrosion from bio feedstocks, which can be 10-50 times more corrosive than crude.

Emerson helps biofuel refining plants continuously monitor equipment for corrosion and erosion, ensuring equipment health and preventing shutdowns.

Traditional Corrosion Monitoring Techniques are Outdated and Unreliable

Manual ultrasound inspections depend on the technician, causing inconsistent measurements. Intrusive coupons don’t provide visibility into wall thickness and is a historical, non-current view.

These methods hinder decision-making, leading to reactive maintenance and average performance.

Use Emerson's Advanced Corrosion and Erosion Monitoring System for Enhanced Asset Health

By using Emerson’s non-intrusive corrosion transmitters, no couplant is needed to adhere the transmitter to the pipe. Therefore, our measurement is directly on the pipe to ensure reliable and accurate measurement.

With Rosemount™ Wireless Ultrasonic (UT) Sensors installed you get:

- **Continuous Measurements**: High repeatability and accuracy. Temperature and material compensated. Measurements are sent to Plantweb Insight™ prepackaged analytics
- **Estimated Remaining Asset Life and Corrosion Rate Calculation:** Accessible continuously for proactive maintenance and monitoring trends.

Customer Success Story

Optimizing Corrosion Monitoring with Emerson's Advanced Solutions

Situation

The biorefining process, characterized by feedstock variability, contaminant, and high temperatures, accelerate corrosion rates in pipes and vessels, especially in the PTU. A US-based biorefinery faced issues with their existing corrosion monitoring system, including poor pipe contact, connectivity problems, and short battery life. They needed a more reliable solution.

Solution

The customer collaborated with Emerson to address their challenges with feedstock corrosivity. Together, they inspected the PTU separator and found significant wear down to the base metal, requiring immediate attention.

Emerson provided the Rosemount™ Wireless ET310 Corrosion and Erosion Monitoring System with magnetic vessel mounts, along with the Plantweb Insight Non-Intrusive Corrosion Application. This solution offered superior understanding of asset conditions, appropriately fitted for the PTU's 12' diameter.

RESULTS

- **Erosion Issue Identified:** Averted leakage, regulatory fines and a possible unplanned shutdown.
- **Optimized Monitoring Process:** Reliable visibility to asset conditions and improved decision-making.

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Protect Your Plant with Emerson's Advanced Corrosion Monitoring Solutions

MONITOR IMPACT | Non-Intrusive Wireless

Measure actual metal thickness and loss

Ultrasonic Thickness (UT)

- Flexible, highly distributable, single point wall thickness, integrity measurements
- Wireless data retrieval to desk or cloud

Plantweb Insight Non-Intrusive Corrosion Application

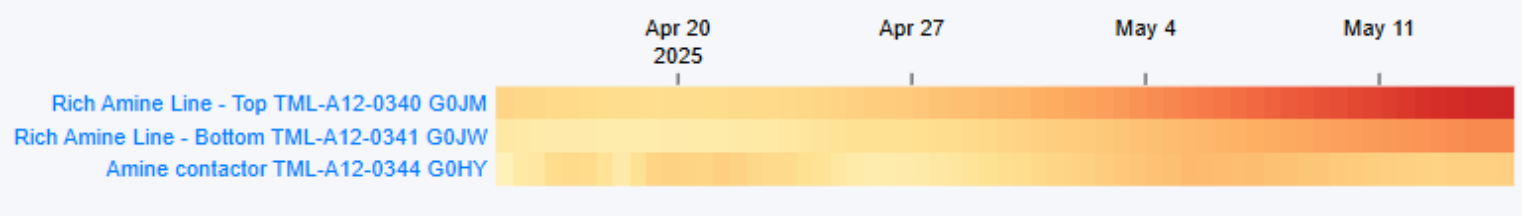
- Real-time data is delivered securely to the end users' desk, offering best-in-class visualizations, and analytics.
- Trending data calculations enable visibility into corrosion rates and provide the estimated life of your assets

How it Works

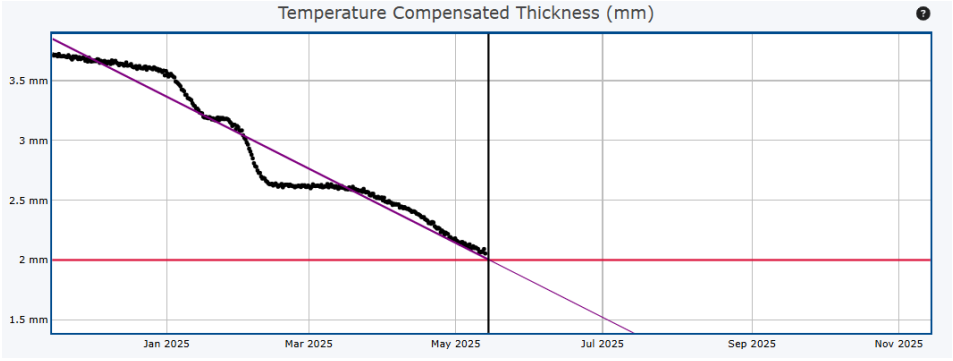
Emerson's Rosemount Wireless Corrosion and Erosion Transmitters offer continuous, real-time monitoring of pipe wall thickness at strategic locations. These sensors detect material loss and transmit data via WirelessHART® to a centralized data collection platform.

The collected data provides valuable insights into metal loss trends, alerting teams when high corrosion rates are occurring. Additionally, it helps you understand the impact of varying feedstocks on equipment and chemical inhibitor usage enabling reliability teams to effectively manage asset integrity.

Here is an example of a Metal Heat Loss Map provided in the Plantweb Insight Non-Intrusive Corrosion Application.



This graph demonstrates decreasing wall thickness data analysis and end of life prediction..



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