MITIGATION SOLUTION

C-CUBE

1. Coating Quality Measurement (CQM)
   Description :
   Coating Quality Measurement (CQM) is a further developed version of Electrochemical Impedance Spectroscopy. While EIS can only perform a maximum of two measurements a day, CQM can perform hundreds. As a result, outliers are easily detected, and the reliability of test results is increased.

   This method of maintaining assets prevents failure and downtime by repairing corroded area's before the structural integrity is at risk. Predictive Maintenance saves up to 40% of maintenance costs. Additionally, it is used to develop a numerical model to predict the lifetime of the measured asset.

   End Use :
   CQM is used to examine the condition of coatings and can provide indications on the protective characteristics of the coating systems.

   Provides Insight :
   1. How good the (visually intact) coating really protects
   2. Coating degradation over time
   3. Presence of corrosion underneath coating layers.
   4. Prognoses when corrosion starts
   5. Prognoses of % visible corrosion over time

Scansolution

1. Neu-Scan
   Description :
   Neu Scan NDT is an advanced non-destructive testing (NDT) method designed to detect and assess moisture presence in insulated piping, vessels, and tanks. Utilizing Neutron Backscatter Scan (NBS) technology, this method relies on a radioactive source that emits high-energy fast neutrons into the insulation. The interaction between these neutrons and hydrogen atoms within the insulation enables precise identification of moisture content, as the detector measures the quantity of low-energy neutrons scattered back.

   This approach is particularly effective in detecting super wet or saturated insulation, helping prevent corrosion under insulation (CUI), a major concern in industrial facilities.

End Use :

Neu Scan NDT is widely applied in industries such as oil and gas, petrochemicals, power plants, and marine operations, where insulated assets are vulnerable to hidden moisture infiltration. It plays a crucial role in predictive maintenance programs, allowing asset owners to pinpoint moisture-affected areas without removing insulation, thus reducing downtime and maintenance costs.

Provides Insight :

By offering real-time data on moisture distribution within insulation layers, Neu Scan NDT helps maintenance teams make informed decisions regarding repair or replacement strategies. The technique enhances asset integrity management by minimizing the risk of undetected CUI, ultimately extending the service life of insulated equipment and ensuring operational safety.

2. WI Discovery Device

Description:

WI Discovery is a SMART device that monitors constantly for leakage to enhance your plant LDAR or preventive maintenance program.

For any process environment where thermal insulation could “conceal leakage” from the pipeline/vessel, WI Discovery device is the SMART solution. Each WI Discovery device can detect, indicate and identify the location of any fluid or water ingress (conductive or hydrocarbon liquid) present on the pipe surface with LED light flashes or blinking.)

End Use :

WI Discovery device is easily to be installed on pipelines or vessels and applicable for the following industries:

1. Oil and Gas
2. Petrochemical
3. Shipbuilding
4. Steel
5. Food and Beverage
6. Pulp and Paper
7. Sugar Refining
8. Chemical Storage

Specification :

Application	Conductive fluids / hydrocarbon liquid detector
Power	Lithium Thionyl Chloride Battery
Maximum operational life	3 years
Maximum operation time after activation	10 days
Certification details	See certification section
Water resistance – Index of Protection	IP66
Minimum pipe outside diameter	17mm combined with a minimum 15mm thickness of insulation
Insulation thickness range	10mm to 80mm
Protrusion from pipe surface	Max – 210 mm Min – 168 mm
Diameter	Approximate 48mm
Weight	Approximate 85gm

Smart Thermal Indicative Coating

1. STIC-60

   Description :

   STIC 60 is a functional coating for identifying hot spots and internal insulation failures or damaged insulation. Exhibiting a visual color change in response to temperature rise. External Cladding surface temperature should not exceed ambiance temperature on any given time and as per ASTM 1055 surface temperature should not be more than 50 Deg C for safe touch (PPE).

   End Use :

   STIC 60 is used on Hot vessels in chemical and petrochemical facilities as a one-time warning of dangerous temperature increases due to insulation failures or damaged insulation.

   Advantages :

   - Visual identification
     - Allowing maintenance to be more focused and cost efficient and early detection of wet/damage insulation
     - Improve the life span & integrity of asset & unnecessary opening good insulation for inspection.
   - Active System
     - Early notification for intervention to located and allowing quick remedial action.
   - Time Saving

    - Enabling early detection and maintenance for targeted location.
- Effectiveness
    - No blind spot, does not rely on external forces.