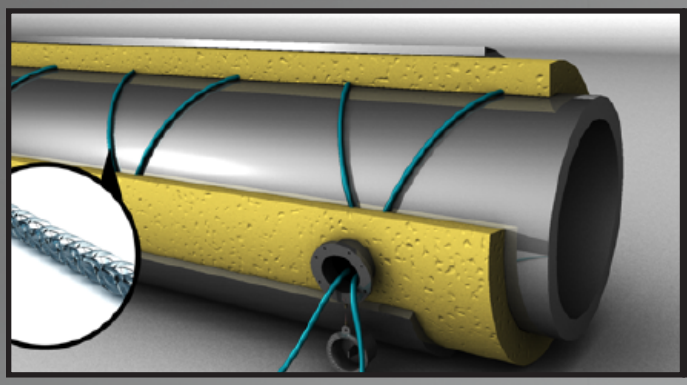
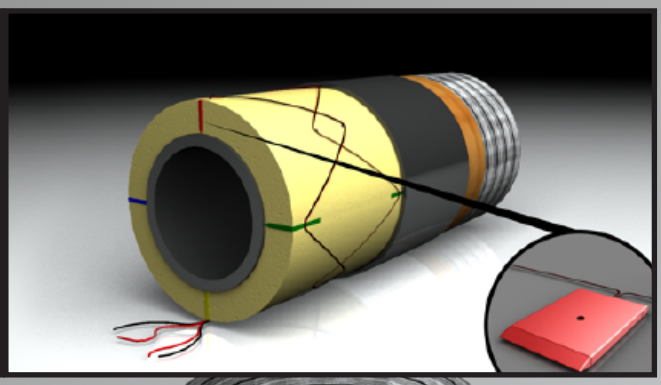
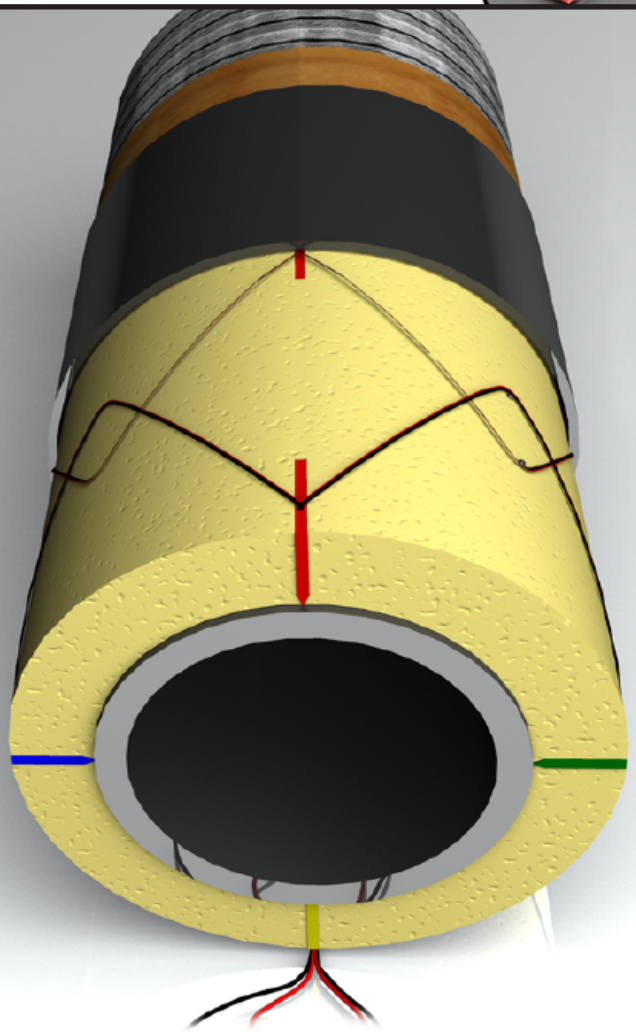
COSASCO® CORROSION UNDER INSULATION (CUI) CORROSION SENSORS





Detect Corrosion Under Insulation with Patented, Low Cost, Cosasco® CUI Sensors

No Removal of Insulation Required!

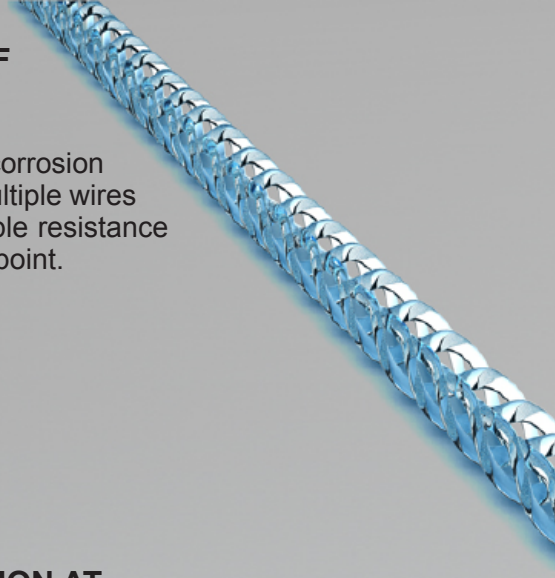


Corrosion Under Insulation (CUI) is recognized as a major corrosion problem, which costs the oil & gas, chemical & petrochemical, and food processing industries millions of dollars a year in inspection, repair, and replacement costs. CUI can be detrimental to the integrity of an insulated pipeline or vessel if not detected early on, causing leaks leading to possible catastrophic events.

As the pipe surface is not normally accessible, the current methods of detecting CUI can be expensive and may require the removal of the insulation and cladding. These include visual inspection, radiography, thermal imaging, moisture detectors, and moisture removal methods. These techniques in general, do not give reliable, or a direct indication of corrosion, even if there is moisture present in the insulation.

RCS offers three low cost methods of monitoring CUI including, Continuous Insulated Braid “corrosion fuse” Wire (Type 1), Inserted “corrosion fuse” probe array (Type 2), and CUI Corrosometer® Probe (Type 3). These three techniques offer direct corrosion detection and a much lower cost per monitoring point than existing methods and may be customized to meet individual requirements and applications to fit with any plant integrity management program.

CONTINUOUS WIRE "CORROSION FUSE" FOR DETECTION OF CORROSION OVER A RELATIVELY LARGE AREA



The single wire can be used as a 'corrosion fuse' to indicate that an amount of corrosion has occurred. An insulated carbon steel wire of a certain element thickness, or multiple wires of varying thickness, is used as a wire loop circuit that is measured using a simple resistance meter or multimeter from the outside of the insulation at a convenient monitoring point.

Key Benefits

- Single or multiple, continuous wire detects corrosion over a relatively large area of cover
- Low cost and easy to install
- Potential savings in inspection and associated repair costs
- Multiple wire thickness option for determining corrosion rate

CORROSION FUSE SENSOR ARRAY FOR DETECTION OF CORROSION AT KNOWN, DISCRETE LOCATIONS AROUND PIPE

The Inserted Probe Array Sensor (patent pending) acts as a 'corrosion fuse' detector that will provide an indication of corrosion occurring at the pipe surface, at known discrete locations. The Inserted Probe Array Sensor is a chain of four (or more) discrete probes connected in series by two circuits. Each sensor chain is made up of four molded probe housings, each with two measuring elements and a different companion resistor set. When an element wire corrodes through completely, an open circuit will occur in the sensor circuit which will read the companion resistor value, thus allowing the user to identify which probe or probes in the chain have corroded.

Key Benefits

- Detects corrosion at pipe surface at known discrete locations
- Simple and robust design, low cost, easy to install
- Does not require removal of insulation
- Potential savings in inspection and associated repair costs

CUI CORROSOMETER® PROBE PROVIDING A DIRECT MEASUREMENT OF THE CORROSION CONDITIONS

The CUI Corrosometer® probe sensor is an individual electrical resistance (ER) probe that provides a measurement of the corrosion rate near the pipe surface. It is useful in determining the underlying cause of corrosion and the ability to measure changes in corrosion conditions. It is measured by any of the portable Corrosmeter ER Probe measurement instruments, including the Checkmate, Checkmate Plus, and Mate II.

Key Benefits

- Provides a direct measurement of corrosion vis metal loss, corrosion rate and trends
- Potential savings in inspection and associated repair costs
- Does not require removal of insulation
- Low cost, easy to install and interrogate using standard ER corrosion probe instrumentation

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