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Winner of the French Oil & Gas Council Innovation Award for Zerust's[®] ZIF Tape

Zerust[®] Inhibitor Fusion (ZIF) Tape for CUI

HISTORICAL DATA SHOWS THAT ABOUT **60% OF PIPE LEAKS ARE CAUSED BY CORROSION UNDER INSULATION (CUI).**

The Problem

Corrosion Under Insulation (CUI) is one of the (petro) chemical processing industries worst problems and the costs associated to mitigating it are astronomical.

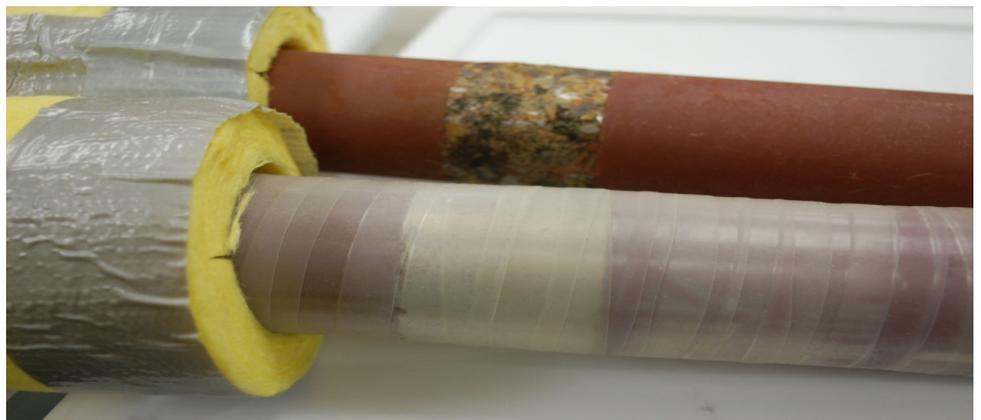
CUI is any type of corrosion that occurs due to a moisture buildup on the external surface of insulated equipment. If undetected, the results of CUI can lead to the shutdown of a process unit or an entire facility, and in rare cases it may lead to a process safety incident. While carbon and low-alloy steels operating between -4°C and 149°C are most at risk from CUI, the intermittent boiling and flashing that occurs above a metal temperature of 100°C (212°F) produces a fairly aggressive CUI environment. CUI is one of the most difficult processes to prevent. The reason for that is, by and large, no matter the precautions taken, water invariably seeps into the insulation and begins its dirty work—sometimes unseen until process leakage occurs.



Available in 2", 4", 12" and 16" widths.

The Solution

Zerust has developed the unique Zerust Inhibitor Fusion (ZIF) tape using the proven platform of high temperature self-fusing silicone tapes to deliver corrosion inhibitors to the surface of the pipe lengths under insulation. The ZIF tape is simply wrapped over the pipe to be protected, over the existing coating, prior to the installation of the thermal insulation. Once installed, the inhibitors are most effective when there is moisture present and therefore mitigate corrosion caused by condensation and high temperature flashing. The unique inhibitors are effective to temperatures up to 200°C . When moisture evaporates as the pipeline temperatures rise, the inhibitor is released to be redeposited under the silicone tape and in contact with the pipeline where it is dormant until the temperatures drop and moisture re-condenses.



ZIF Tape Benefits

Active inhibitor protection system that mitigates corrosion when moisture is present

Long term protection at minimal cost

Easy to install

Easy to remove with no residues

Minimal/no surface preparation required

No heat or special equipment required for installation

High temperature range application (-4° up to 200°C)

Bonds to itself and remains non-tacky to the touch

Can be used for low pressure leak prevention

Good mechanical and puncture resistance– will protect paint underneath

Availability

Available in 36 ft. long, individual, whole rolls in 2", 4", 12" and 16" widths.

Part No.

02" ZIF Tape: 250-F-00105

04" ZIF Tape: 250-F-00108

12" ZIF Tape: 250-F-00106

16" ZIF Tape: 250-F-00107

ZIF Tape 36 ft. long

Product Description

ZIF Tape is a corrosion inhibiting tape based on silicone elastomers with proprietary Zerust chemistry integrated into the matrix. It combines Zerust's proven corrosion protection benefits with the specific properties of a self-fusing film for easy, cold application. It is stable under prolonged exposure to UV/sunlight and is translucent in appearance. It is non-tacky to the touch, but will 'fuse' within ~30 seconds to form a long lasting bond. It is elastic in nature and can be stretched to provide closer fits to surfaces to which it is applied. This close fit coupled with the application tension minimizes the gaps/spaces where moisture might penetrate.

Test Results

Control:

Pipe coated with red iron oxide primer with a 2 inch bare/uncoated section in the middle
Wrapped with 1 inch thick fiberglass insulation and tape

Test Specimen:

Pipe coated with red iron oxide primer with a 2 inch bare/uncoated section in the middle
Wrapped with ZIF tape (~50% overlap on the wraps)
Wrapped with 1 inch thick fiberglass insulation and tape

Test Conditions:

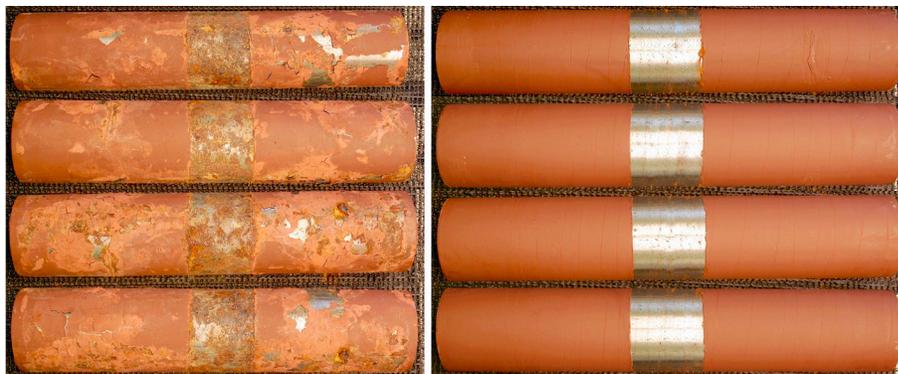
Step 1: Control and test specimens immersed in tap water for 8 hours

Step 2: Control and test specimens drained and placed in a convection oven at 80°C overnight
Steps 1 and 2 carried out daily for 25 days

Results:

The ZIF tape significantly reduced the corrosion rate to both the bare and the coated sections even through the extreme test protocols. Substantial corrosion was seen in the control with blistering and delamination of the primer layer.

The most effective method of preventing CUI is to keep water and electrolytes from coming into contact with the unprotected metal surface. However, while it's nearly impossible to guarantee that the insulation or coating will not be breached - and none of the above mitigation practices guarantee the complete prevention of CUI - Zerust's ZIF tape works with the assumption that there will be moisture ingress and actively inhibits corrosion.



Control

ZIF Tape

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Zerust® OIL & GAS

WORLDWIDE CORROSION SOLUTIONS

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