

CREDENTIALS

50+ years of experience
in corrosion prevention.

Client support in 70+
countries.

MEMBERSHIPS



Zerust Flange Saver®
Zerust ReCAST-R™
2012: Winner of the MP
Readers' Choice NACE Corrosion
Innovation of the Year award

Zerust® Pipeline Preservation Solutions

The Problem

Pipeline construction projects can take years between mobilization and commissioning. Over time, if not protected, staged pipe lengths or critical zones of assembled pipelines may corrode and will need to be reworked due to the pockets of water that will collect in the pipeline.

For pipeline segments that are staged along the pipeline path, moisture and contaminants combine to cause corrosion that deteriorates the pipe interior surface and the cut back sections.

Surface corrosion can occur in pipe sections during storage or to assembled pipe segments post hydro testing. Options for constructed pipelines, such as Nitrogen purging are both expensive and of limited effectiveness. A clean, corrosion free pipeline is a critical starting point for long term pipeline integrity.



The Solution

Zerust Oil & Gas, a world leader in corrosion management with over 50 years of experience, has unique solutions to mitigate corrosion inside pipelines prior to construction or downtime using Zerust's Vapor Corrosion Inhibitors or VCIs.

Zerust Oil & Gas has several cost-effective options using VCIs for protecting these pipe lengths during pre-construction, pre-commissioning or during mothballing, layup or abandonment.

1. Preservation of Pipe Lengths
2. Pipeline Preservation Post Hydrotesting
3. Non-Commissioned Pipeline Corrosion Protection - Misting Pig
4. Anti-Corrosion for Pipeline Layup by Liquid Injection

Do you have a pipeline in the pre-construction or pre-commissioning stage for which you need anti-corrosion solutions?

Contact us for your corrosion management needs at marketinginfo@zerust-oilgas.com.



Pipeline in trench being injected with corrosion inhibiting slurry.

Warranty and Disclaimer Information:

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Preservation of Pipe Lengths

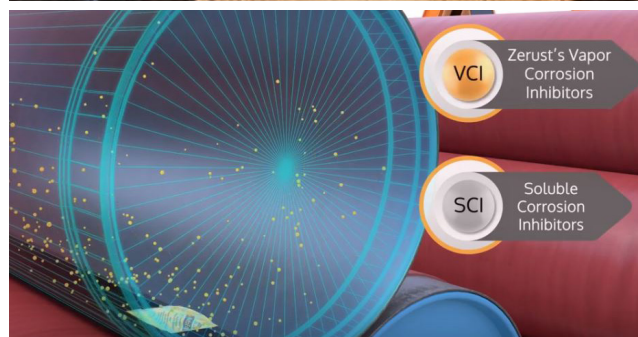
For protection of pipe lengths, Zerust has effective and economical protection options using Vapor Corrosion Inhibitors or VCIs. During transportation or when pipe lengths are staged along the pipeline construction route, sachets of Zerust Vapor Corrosion Inhibitors or VCI, are inserted into the pipe length and the ends are sealed. The sachets also contain Soluble Corrosion Inhibitors, or SCI, that protect from the water that may form from condensation because of thermo-cycling.

The area on the pipe at the very end where the coating has been removed is called the “cut back”. It is imperative to protect the cutback area and the bare beveled area at the pipe ends where the weld joint is made. Zerust’s Inhibitor Fusion Tape, also known as ZIF Tape, can be used over the external cut-back area for protection.

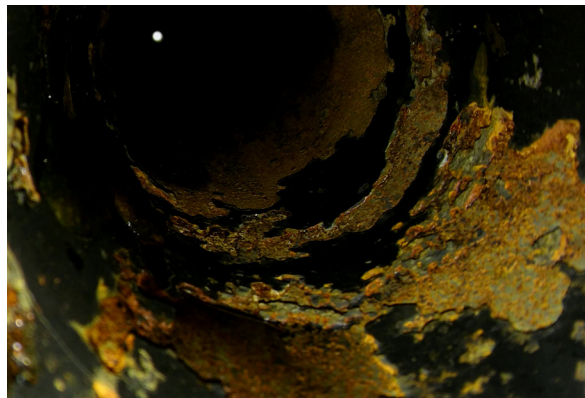
VCIs have a vapor pressure higher than air and VCI molecules release from the sachet and fill the pipe; adsorbing onto bare metal surfaces of even the most complex geometries to provide protection against corrosion. The length and diameter of the pipe segment will determine the number of VCI sachets that will need to be used to provide corrosion protection.

The VCI sachets are secured by a string to the end cap and can be pulled out automatically when the pipe segment is ready to use. Corrosion can affect pipe lengths in the pre-construction phase. Using this simple application, pipe lengths can be protected from internal corrosion for a period of several months or even years.

There are several cost-effective options for protecting these pipes during the pre-construction and pre-commissioning phases using VCIs.



Pipeline Preservation Post Hydrotesting

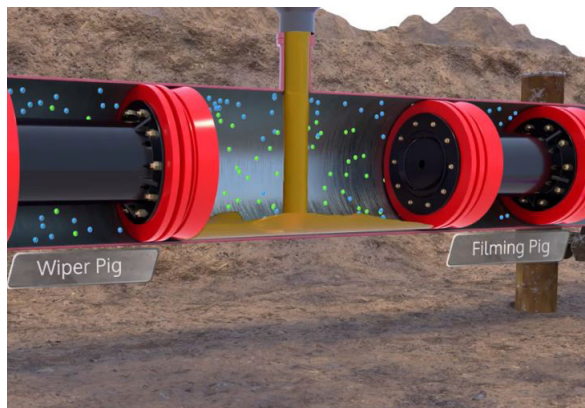


Once a pipeline has been assembled and hydrotested, Zerust has a unique application that can protect pipelines from internal corrosion until the pipeline is commissioned. This process can eliminate the need for dry air or a Nitrogen purge.

Zerust’s unique blend of Zerion Inhibitors is first mixed with water. The inhibitor slurry is then pumped between two pigs. The lead pig is typically a wiper pig and the trailing pig is a filming pig which will leave a thin layer of the VCI slurry on the surface of the pipeline.

Soluble Corrosion Inhibitors or SCI in the slurry will neutralize contaminants on the steel surface upon contact. Volatile Corrosion Inhibitors will evolve from the slurry to provide continuing protection to the entire internal surface. Compressed air is typically used to push the pigs and neither dried air or Nitrogen is required at any point in the process. The surface area of the pipe is in contact with the slurry which then sheds to the 6 o'clock position of the pipe. The surface comes into direct contact with the SCI's in the chemistry. The inhibitors will neutralize moisture, and acidic species. Vapor molecules volatilize into the annulus of the pipe and adsorb onto the steel surface. As the pigs move, the inhibitor slurry is deposited as a thin film on the internal surfaces of the pipeline and the SCI is in direct contact with the entire metal surface area of the pipe interior. VCI molecules are released that protect the bare metal surfaces. The inhibitor molecules fill the pipeline as well as any gaps due to valves, ports and instrumentation. Excess slurry drains to the bottom of the pipeline. Corrosion inhibitor particles remain even when water flows to low points in the pipe, still releasing VCI molecules. In the event of any water ingress, the inhibitor will neutralize corrosive contaminants.

Long lengths of piggable pipelines can be protected using this method. Zerust has successfully implemented this solution on significant pipeline lengths.



Non-Commissioned Pipeline Corrosion Protection - Misting Pig

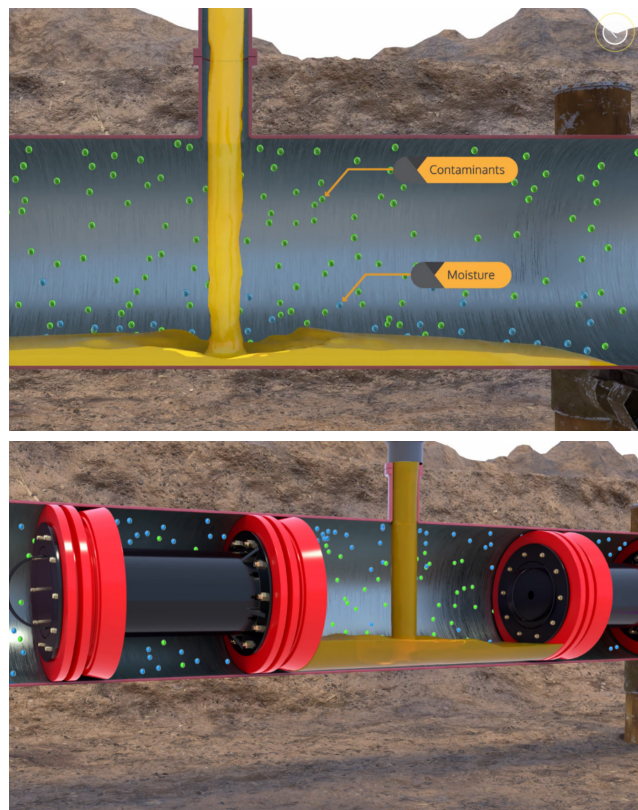
Once a pipeline has been assembled and hydrotested, Zerust has a unique application that can protect pipelines from internal corrosion until the pipeline is commissioned. Zerust's unique blend of Zerion Inhibitors is first mixed with water. In some cases, a vacuum truck may be used to mix the Zerust inhibitor with water.

The Zerust inhibitor slurry is then pumped into a pig launcher adjacent to the pipeline and is injected between a lead pig and a filming pig. Typically, compressed air is used to push the pigs through the pipeline. As the pigs move, the inhibitor slurry is misted, creating a thin film on the internal surfaces of the pipeline and the Soluble Corrosion Inhibitors, or SCI, is in direct contact with the entire metal surface of the pipe interior and will neutralize corrosive contaminants on the surface of the steel.

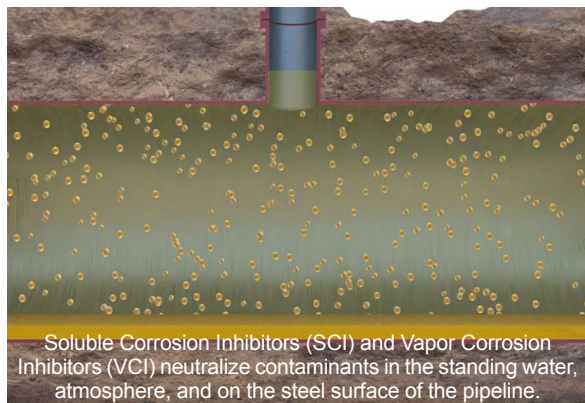
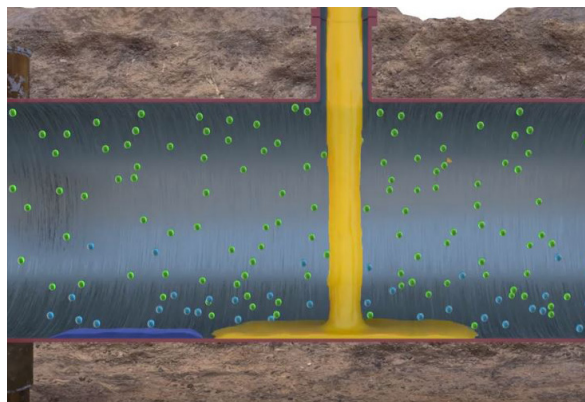
VCI molecules are released that protect the bare metal surfaces. The inhibitor molecules fill the pipeline as well as any gaps due to valves, ports and instrumentation. Corrosion inhibitor particles remain even when the water evaporates, still releasing VCI molecules. In the event of any water ingress, the inhibitor will neutralize corrosive contaminants. SCI will neutralize the surface of the steel and pH balancing of the chemistry.

Long lengths of piggable pipelines can be protected using this method. The sealed pipe section will remain protected for several years.

Zerust has successfully implemented this solution on significant pipeline lengths.



Anti-Corrosion for Pipeline Layup by Liquid Injection



The low-lying area of pipeline segments that are non-piggable are susceptible to collecting residual water which can lead to corrosion.

Zerust Oil & Gas has a liquid inhibitor injection procedure for layup. Zerust's unique blend of Zerion Inhibitors is first mixed with water. In some cases, a vacuum truck may be used to mix the Zerust inhibitor with water.

The inhibitor slurry is then pumped into ports in the higher elevations of the pipeline and allowed to flow to the lower elevations by gravity. Standing water is treated by the Soluble Corrosion Inhibitors, or SCI, slurry and neutralized.

VCI evolves from the slurry and neutralizes contaminant molecules in the atmosphere and on the steel surface.

SCI will neutralize the pH balance of the standing water at the bottom of the pipeline.

The VCIs will volatilize to provide continual protection of the annulus of the pipe until it is commissioned and begins service.

Zerust has over 50 years of experience and has completed numerous projects.

Soluble Corrosion Inhibitors (SCI) and Vapor Corrosion Inhibitors (VCI) neutralize contaminants in the standing water, atmosphere, and on the steel surface of the pipeline.

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

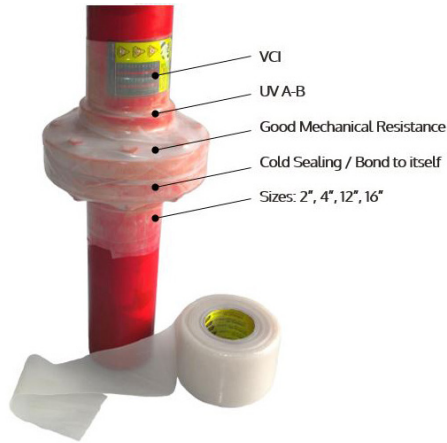
No heat or special equipment required for installation

Wide temperature range of application (-40° C - 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 Nos.

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

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 shut-down 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.



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.

Features	Approved
Provide protection by Zerust Corrosion Inhibitors.	✓
High capacity to conforms / molds when wrapped around/onto complex shapes.	✓
Bonds to itself rapidly and remains non-tacky to the touch.	✓
Cold, easy and quick application process.	✓
No residue remains, when remove the tape.	✓
Wind, sunlight UV, oxygen and seawater resistance.	✓
No heat/equipment required.	✓
Wide range of application temperatures.	✓
Flame resistant when wrapped.	✓
Protection from welding sparks.	✓
Good mechanical and puncture resistance, even around sharp edges.	✓

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