



VCI INJECTION FOR BURIED ASSETS

NO EXCAVATION OR DISRUPTION

CORROSION PROTECTION

ZERUST® offers a non-intrusive corrosion protection system for buried vessels using combined Vapor and Soluble Corrosion Inhibitor (VCI/SCI) injection technology. When ZERION® FVS-DB is introduced into the interstitial space, SCIs neutralize contaminants while VCIs diffuse to form a passivating layer on metal surfaces. This dual-action protection stabilizes the environment, suppresses corrosion, and extends asset life without excavation or downtime. Ideal for assets with limited access or failed cathodic protection (CP) systems, it also supports long-term monitoring.

Problem: CP Failures and Limited Inspection Access Increase Corrosion Risk

Buried pressure vessels and tanks are vulnerable to external corrosion due to aggressive soils, high salinity, humidity, and limited access for inspection. Traditional cathodic protection (CP) systems, while commonly used, often degrade over time or fail unexpectedly, especially when retrofitting is impractical due to safety or structural constraints.

Failures in CP systems may lead to environmental risks, equipment downtime, and expensive corrective actions.

Solution: ZERUST® Zerion™ FVS-DB VCI Injection

ZERUST® has developed an innovative corrosion mitigation method for buried vessels using combined Vapor and Soluble Corrosion Inhibitor (VCI/SCI) technology. This dual-action approach provides long-term protection against corrosion without excavation, shutdowns, or structural disruption.*

The system uses Zerion® FVS-DB, a corrosion-inhibiting medium formulated for general soil-side conditions where liners surrounding the asset are present. Once injected into the soil or interstitial spaces via perforated tubing positioned around the asset, Zerion® FVS-DB releases protective vapors. These vapors travel through the media and form a passivating atmosphere to suppress active corrosion sites, extending asset life while reducing maintenance and repair costs.

Key Benefits:

- No excavation or hydrocarbon disruption required
- Buffering the interstitial environment to reduce corrosive ion activity (chlorides, sulfates)
- Compatible with concrete pits, coated or uncoated surfaces
- Effective for both horizontal and vertical buried vessels
- Validated performance through ER probes and corrosion coupons
- Scalable solution for retrofits or new installations

*Most buried assets are coated. Check with your ZERUST® representative for compatibility guidance.

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solution information

Ideal Applications

ZERUST® VCI injection is designed for buried assets that are difficult to access or protect using traditional methods.**

Common applications include:

- Pressure vessels and tanks installed in:
 - Concrete pits (with or without soil)
 - With lined, painted, or uncoated interiors
- Horizontal cylindrical tanks for fuel, chemicals, or LPG
- Vertical cylindrical tanks for water, wastewater, or utilities
- Assets with limited CP effectiveness or retrofit constraints
- Facilities seeking a non-intrusive corrosion mitigation solution

Installation Overview

ZERUST® VCI injection is installed through a structured, non-intrusive process with minimal disruption to operations:

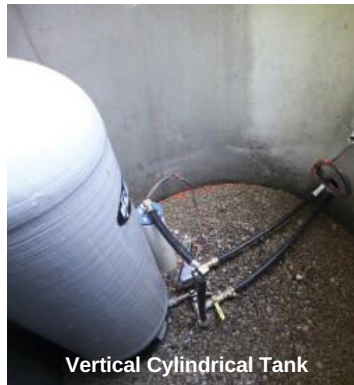
- 1. Site Prep & Safety:** Includes soil sampling, sealing integrity checks, and client-approved permits.
- 2. Core Drilling & Access:** Manual drilling creates injection points for VCI, ER probes, and coupons.
- 3. VCI Injection & Monitoring Setup:** Perforated PVC pipes are installed, Zerion™ FVS-DB is injected, and ER probes and coupons are placed for ongoing monitoring.
- 4. Sealing & Handover:** Ports are sealed then tagged and secured. Baseline readings are recorded and handed over.



Concrete Pit Buried



Concrete Pit Open



Vertical Cylindrical Tank



Buried Vessel in Concrete

**The system is intended for assets installed within lined or semi-sealed enclosures. If no liner or boundary is present, the VCI may dissipate into surrounding soil, reducing long-term effectiveness

Why ZERUST® and Why Now?

Many buried vessels are outlasting their original protection systems. Cathodic protection (CP) failures often go undetected until corrosion causes costly damage and downtime. ZERUST® offers a proactive, non-intrusive alternative.

Our VCI injection system uses ZERUST® Zerion™ FVS-DB to deliver protective solution through the soil and vapors in the exposed space inside the pit, forming a corrosion barrier without excavation or disruption. It's compatible with ER probes and coupons for long-term monitoring, and backed by proven performance.

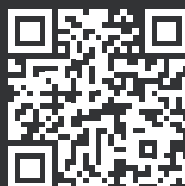
† DECLARATION

Corrosion protection claims are based on Northern Technologies International Corporation (NTIC) internal laboratory testing performed under controlled parameters on contaminate-free substrates. Real-world application corrosion protection duration on different substrates will vary and depends on factors such as, but not limited to, the application or use, environmental/ storage conditions, surface cleanliness, type of substrates, and coating thickness (where applicable). The use of the term "Up to" in reference to time is defined as any time duration from zero up to a specified time frame, but in no event beyond the specified time frame. The use of the term "for years" is based on NTIC's experience with its products but is in no way guaranteed. The use of the term "Up to" in reference to volume is defined as any volume from zero up to a specified volume but in no event beyond the specified volume of protection. It is the customer's/user's obligation to evaluate product performance, corrosion protection duration, safety, and suitability for intended use within the scope advised in the data sheet and to comply with all applicable laws and regulations.

LIMITED WARRANTY/DISCLAIMER Warranty is limited to the replacement of a product that fails to meet specifications. For full warranty and disclaimer information, visit www.zerust.com/warranty.

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Supersedes: v8
 Revised: 10/17/2025



With over 50 years of experience, ZERUST® Integrity Solutions, a division of Northern Technologies International Corporation (NTIC), creates unique inhibitor-based corrosion prevention solutions to serve terminals, pipelines, exploration and production, equipment suppliers, transportation sectors, and more.

ZERUST® Integrity Solutions, ZERUST®/EXCOR®, and Natur-Tec® are sister companies under NTIC.

