

#### CREDENTIALS

40+ years of experience in corrosion prevention.

Client support in 50+ countries.

Chair key task group at NACE International.

#### MEMBERSHIPS



Zerust Flange Saver®  
Zerust ReCAST-R™

2012: Winner of the MP  
Readers' Choice NACE  
Corrosion Innovation of the  
Year award

# Zerion® FVS

MULTI-PHASE CORROSION INHIBITOR FOR INDUSTRIAL APPLICATIONS

## The Zerust Solution

Zerust Zerion FVS is a versatile new corrosion inhibitor specifically designed to protect ferrous metals in aggressive corrosion environments where there is the possibility of the accumulation of water, moisture and/or water ingress. FVS provides unique dual action corrosion protection. This new dimension of effectiveness makes FVS the best in class in the market today.

Zerion FVS's two forms of protection:

1. Vapor Corrosion Inhibitors (VCIs) to protect the interiors of "air space" voids and exposed metal surfaces on welded joints, in crevices, at coating holidays, etc.
2. Soluble Corrosion Inhibitors (SCIs) that mitigate corrosion from moisture accumulation or the ingress of water.

This combination penetrates gaps and interstices inside of enclosed voids to provide comprehensive coverage.



Zerion FVS Powder Protects Ferrous Metals.

## Applications

Zerion FVS is a highly cost-effective corrosion mitigation solution for difficult to protect spaces. Some key applications include the following:

#### Aboveground Storage Tank (AST) Soil Side Bottoms (SSB):

Zerion FVS has been used in multiple tank soil side bottom installations. It provides superior protection to exposed steel in vapor spaces and crevices under the tank bottoms and in situations when there is ingress of water into the tank foundation space. FVS can be diluted with water and injected into sand/soil base or introduced as a powder during tank construction or bottom plate refurbishment. Even for tanks with concrete pad foundations, FVS in slurry form can be introduced into the spaces between the plates and the concrete to provide corrosion protection. Zerust has also pioneered a VCI Ring system using FVS if there is no liquid injection. This VCI Ring system is recommended for all SSB installations.

#### Protection of Voids/Enclosures:

The Zerion FVS VCI chemistry actively protects exposed steel from corrosion in large volume voids and enclosures. There are multiple delivery mechanisms and product packages that can be adapted to the geometry of the structure being protected. When it is possible for the void to be hermetically sealed, a one-time introduction of FVS can provide protection for up to 2 years.

#### Hydrostatic Testing:

Add Zerion FVS to hydrostatic testing water to provide excellent protection to exposed steel surfaces. In addition to the SCI protection, the VCI evolves to protect any air pockets or hidden voids. FVS is versatile and compatible with a variety of water profiles and works best with DI, RO or potable water with less than 150 ppm of chlorine.





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## Benefits

Easy-to-use and versatile system.

Corrosion protection for voids and interstices that are impossible to protect with other methods.

VCI's offer non-permanent corrosion protection at the molecular level that is a more cost-effective and eco-friendly alternative to replacing corroded parts.

May be combined with simple monitoring procedures to ensure effectiveness of the solution.

Protection for tank bottom plates and welds with little to no surface preparation.

For tank SSB application, it may be used independently or in conjunction with cathodic protection.

Vapor action ensures uniform distribution within the tank bottom.

## Product Properties

Appearance: Off-white powder

Packaging: Mesh Sleeve, pail or drum

## Safety & Handling

Avoid contact with eyes and skin through use of safety glasses and gloves

If dust is generated ensure adequate ventilation or use dust mask to prevent inhalation

See Safety Data Sheet (SDS) for more information

## Storage

Shelf life is 36 months

Store in a sealed container in a dry, ventilated warehouse at temperatures below 70°C

## Product Use

The ready-to-use mesh sleeves are primarily meant for dry VCI application where there is also a risk of water ingress. The vapor space protection volume is provided in the table below. For aggressive environments with 1 ppm or higher level of acidic gases, Zerion FVS should be used in combination with Zerion AutoFog®. In the event of water ingress/accumulation, FVS will dissolve out of the packaging and neutralize the threat up to the volume of water indicated in the usage table.

For use of Zerion FVS as a water diluted solution for hydro static testing or for tank SSB protection, it is recommended you contact Zerust Oil & Gas for technical support and sizing recommendations.

FVS does not contain phosphates and is readily compatible with most industrial water treatment processes. Dispose of in accordance with local and national regulations.

## Product Sizes & Specifications

Product Name	Description	Application Guide
<b>Zerion FVS-S10</b>	Mesh Sleeve 1 m (3 ft.) long x 20 mm (0.75 in) diameter	Place in center of void and seal tightly. Provides approximately 3.1 m³ volume* of protection.
<b>Zerion FVS-S15</b>	Mesh Sleeve 1.5 m (5 ft.) long x 20 mm (0.75 in) diameter	Designed for use with Inhibitor Delivery System solutions. Contact your sales representative for details.
<b>Zerion FVS-B15</b>	Bulk powder in pails 15 kg/pail	Dilute with water** to use as slurry. Mixing ratio of 0.5% to 15% (w/v) depending on application.
<b>Zerion FVS-B165</b>	Bulk powder in drums 165 kg/drum	

\* Volume of protection is limited to 1 m radius from the mesh sleeve.

\*\* Best performance is obtained with DI, RO or potable water with a chloride level less than 150 ppm

## Duration of Protection

Zerust® Zerion® FVS ready-to-use mesh sleeves typically provide 1-2 years of corrosion protection depending on how well the enclosure is sealed.

FVS mesh sleeves used in tank chime ring seals typically provide 1-2 years of corrosion protection depending on the integrity of the chime seal. Longer protection is possible with replenishment of the inhibitor.

When FVS is introduced into a tank SSB environment, either mixed in as a powder in the sand/soil or injected as concentrated slurry, the typical duration of protection is 5-10 years before inhibitor replenishment is required. The replenishment can be tied into periodic monitoring and maintenance of the effectiveness of the solution.

## Order Specifications

Please contact your sales representative for the correct product for your application.

### Warranty and Disclaimer Information:

We guarantee our products conform to documented quality specifications. Product information subject to change without notice. We make no warranty of any kind expressed or implied as to the effects of use (including, but not limited to, damage or injury). Before use, Buyer/User shall determine suitability of the product for its intended use, and Buyer/User assumes all risk and liability in connection therewith. All statements, technical information and recommendations contained herein are based on testing and experiences NTIC believes to be reliable, but the accuracy or completeness thereof is not guaranteed. Buyer/User agrees that, if product proves to be defective, Seller's obligation shall be to replace or refund the purchase price of such product at Buyer's option. Seller shall not be liable in tort or contract for any loss or damage, incidental or consequential. See [www.zerust.com/warranty](http://www.zerust.com/warranty)

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