


Corrosion Consultation

*We Provide Engineering Solutions to
Prevent Corrosion*



OCEANICS
ENGINEERING SERVICES

www.oceanics.com.sg



*The best quality products,
used in the right way for the right job*

Corrosion Consultation

Corrosion is an extremely destructive force, causing billions of dollars every year globally. Almost all industries are affected by the impact of corrosion, including oil & gas, manufacturing, process, petrochemical and mining.

Oceanics offer Comprehensive on-site, in-depth study and review client's business operations and procedures with experienced Corrosion specialists. A complete report with rust-prevention recommendations is provided at the end of the corrosion consultation to effectively eliminate the rust and corrosion issues once and for all.

At Oceanics, we use the latest technology and methodology in VCI (The term "VCI" stands for Volatile Corrosion Inhibitor) for the preservation process. Our preservation methods protect any size products – We are not only protecting and preserving the iron materials but also protect the sensitive electrical and electronic components as well, stored parts for long term storage to large containerized shipments.

Oceanics offer all the chemicals and preservatives requirements to preserve the rig properly from the crown to the ground. Proper preservation before and during layup defense corrosion and enables faster startups. *Most of our preservation methods can be applied at "in-use" operations and are easy to apply and does not require removal prior to use.* Active preservation will help prevent seizing of moving parts and maintain the life of seals & gaskets.



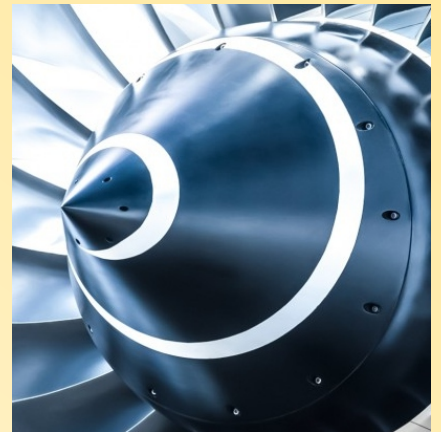
Preserving Assets Across Multiple Industries



Oil & Gas



Process Industries



Aviation



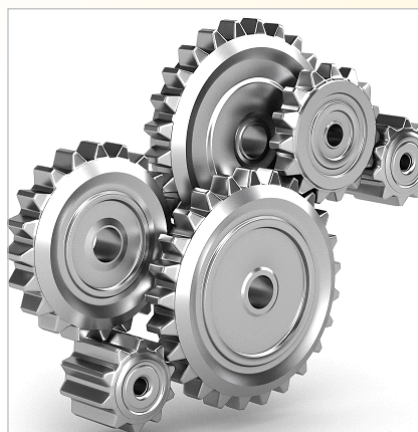
Military



Package



Mining



Manufacturing

Total Corrosion Control solutions and innovative technology with competitive price.

Complete system preservation from corrosion using volatile corrosion inhibitor based technologies

Preservation Solution Available are

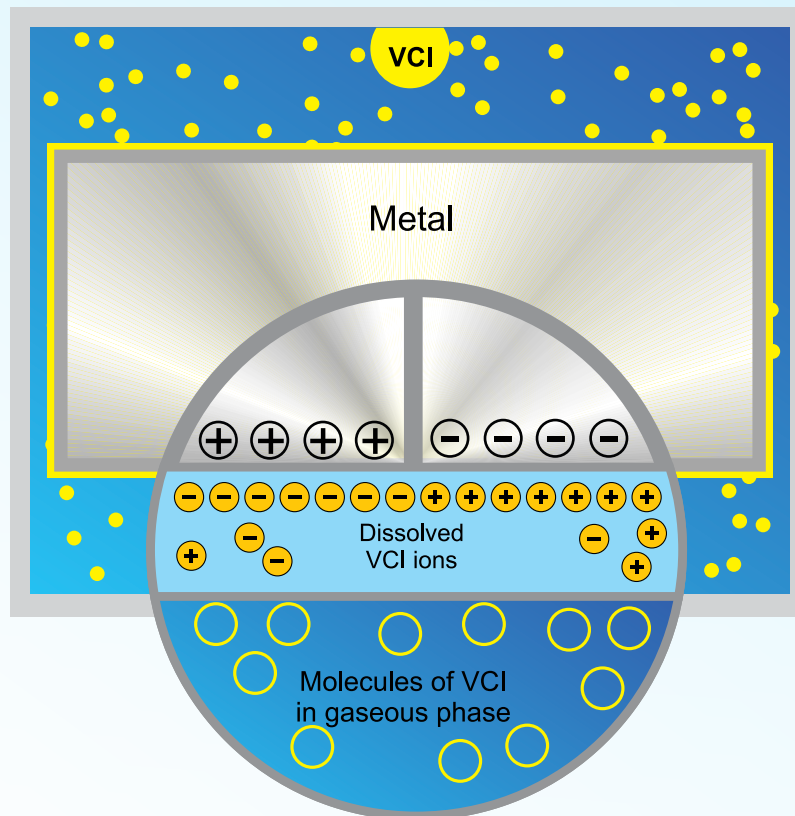
- ▶ Water based systems
- ▶ Oil based systems
- ▶ Electrical systems
- ▶ Fuel systems
- ▶ Packaging/wooden boxes
- ▶ Operational and critical spares
- ▶ Parts undergoing machining operations
- ▶ De-rusting
- ▶ Degreasing
- ▶ Corrosion Protection internal & external surface of the equipment
- ▶ Redline Installation/coating system for pipe line
- ▶ Special Coatings - for corrosive applications internal and external
- ▶ Ideal for H₂S, SO₂ and CO₂ Environments
- ▶ Sea water & potable water corrosion inhibition by film forming Preservatives
- ▶ Protection of non-metal surfaces
- ▶ Anti-mold control for accommodations & non-metal surfaces
- ▶ Protection of rubber items from UV degradation.



Proven, real-world performance

Total Corrosion Control Environmentally Safe VCI technology

Ionic Action of VCI Creates a Molecular, Corrosion Inhibiting layer



VCI Technology

How does VCI Technology works

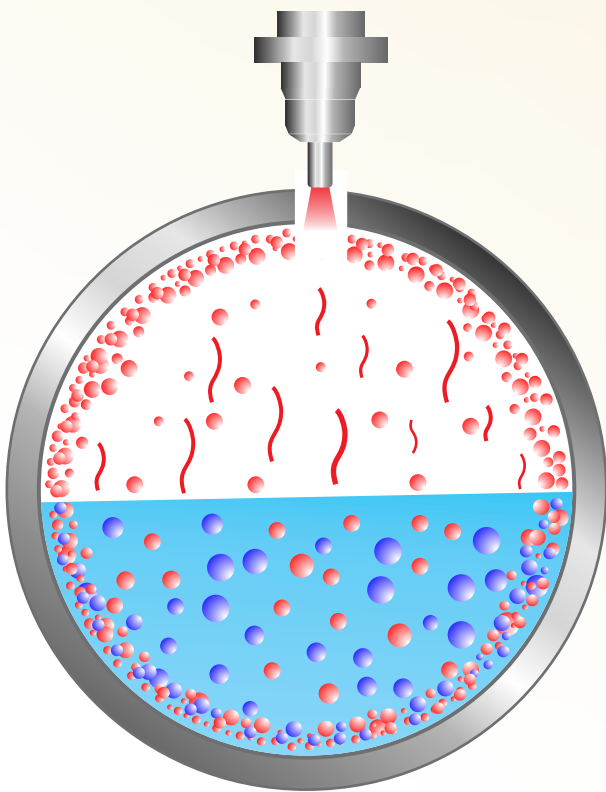
- ▶ Conditions enclosed atmosphere with a protective vapor
- ▶ Vapor migrates to all recessed areas and cavities
- ▶ Vapor condenses on all metal surfaces
- ▶ Ions dissolve in moisture layer (water electrolyte)
- ▶ Protective ions are attracted to metal surfaces
- ▶ Ions form a thin, monomolecular protective layer at the metal surface
- ▶ Protective layer re-heals and self-replenishes through further condensation of the vapor

In addition, VCI combines with other functional properties, including antistatic, lubricating, cleaning, paint removing, polymeric coatings, rust removing and fire retarding.

Total Corrosion Control Solutions

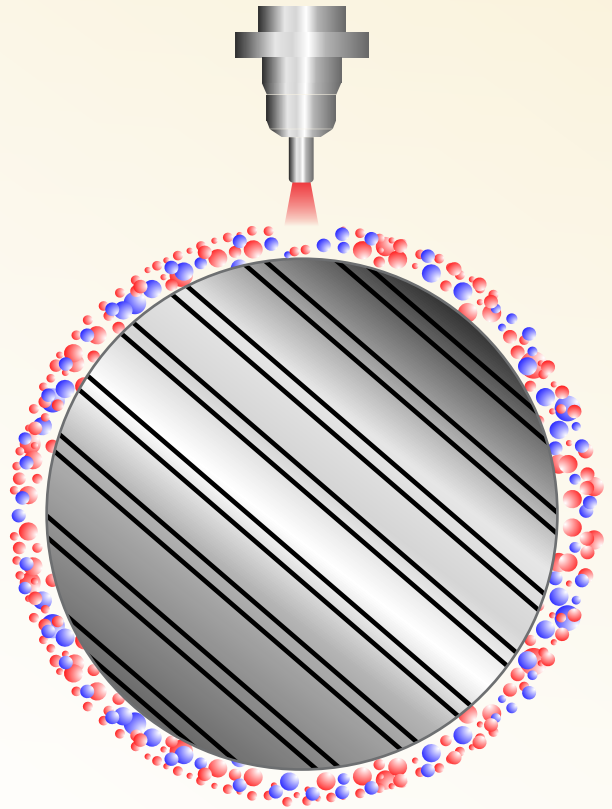
It is available in various forms to suit the application - Water-base, Oil-base, Diesel-base, Paper & Plastic. The vapor will protect inaccessible areas/parts. VCI is invisible, non- toxic, non-reactive and non-hazardous & easy to use. VCI prevents corrosion and stops existing corrosion.

Internal Preservation



*Internal protection on liquid phase
and vapor phase - VCI*

External Preservation



*External Protection
Stable Film with chemical activity*

VCI ions form a protective layer between the liquid & the metal. It also vaporizes, ionizes & forms a protective layer between air space & the metal.

To keep the VCI ions, a retention film is formed on the metal surface. VCI action occurs within the film on the metal surface.



Additives for Metalworking and Hydraulic Fluids

Oceanics offers a variety of additives for use with metalworking and hydraulic fluids. These additives protect metal pieces from flash corrosion during the metalworking process, while also providing protection to the cutting and machining equipment. Other additives can be used for preserving important hydraulic equipment during shipping or storage. A range of vapor phase protection capabilities adds an important dimension to protecting parts with void spaces.

VCI Additives for Lubricants and Greases

This full line of additives offers versatile corrosion inhibitor packages for both solvent- and oil-based lube and grease systems. A common misconception is that oil-based products are naturally strong rust preventatives. While oil itself can help displace moisture, a good corrosion inhibiting additive can significantly increase protection of lube and grease systems. Many of these additives offer vapor phase protection for metals in the void space above the lubricant.



Tested to the most demanding standards



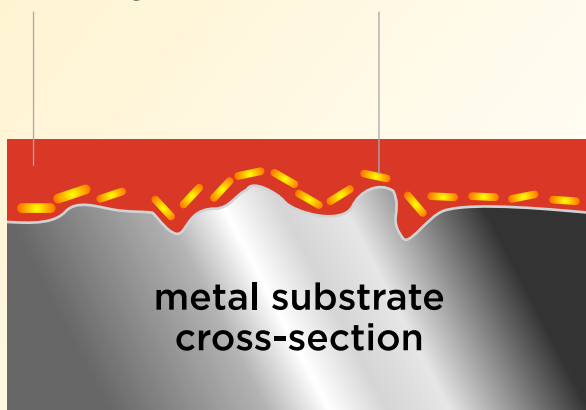
VCI Additives for Coatings and Paints

Oceanics offers a full line of additives for paints and coatings. There are many different formulations of additives for solvent-based and waterborne coatings that cover systems such as acrylics, urethanes, epoxies, alkyds, and more. This full line of additives incorporates products to eliminate flash rust and provide long term corrosion protection against humidity and salt fog.

Traditional Coatings vs. VCI Coatings

Traditional Coating

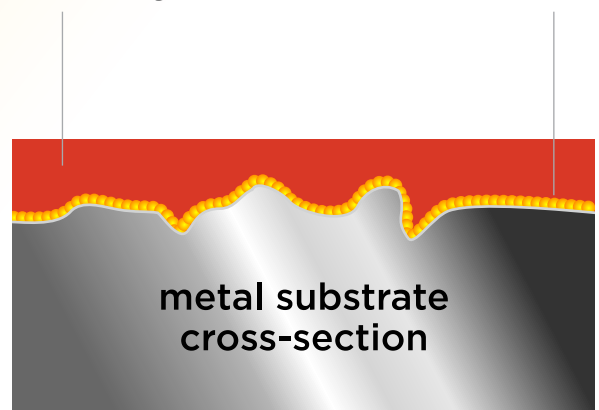
Traditional Inhibitors



**metal substrate
cross-section**

VCI Coating

VCI Inhibitors



**metal substrate
cross-section**

Traditional coatings rely on sacrificial metals (zinc, chromates, aluminum) for inhibition. Due to the large particle size of these inhibitors, gaps exist which allow corrosion to start and eventually expand, causing coating failure. Nano VCI coatings use the patented VCI technology to protect the metal substrate with a tight bonding molecular structure. This system eliminates the gaps which occur with traditional inhibitors and prevent corrosion from starting



Clean, Protect, and Preserve

Environmentally Safe VCI Surface Preparation Technology

Packaging of metallic materials. Anti-corrosive protection of ferrous & nonferrous metals during transportation &/or storage processes.

- ▶ Biodegradable and recyclable product
- ▶ Protective efficiency proven
- ▶ Absorption of excess humidity
- ▶ Avoids condensation on the metal surface



Surface Preparation products are specifically formulated to exceed the expectations and demands of a wide range of users - from sensitive electronic components to heavy industrial equipment. By incorporating VCI technology into the surface preparation products themselves, parts and equipment are left clean, dry and protected, rather than exposed and vulnerable.

Surface Preparation Technology

Rust Removal & Preservation



Redline

Blown-In Pipe Rehabilitation



Redline is a simple cure-in-place rehabilitation technique that completely coats the inside of pipes preventing leaks and pipe corrosion.

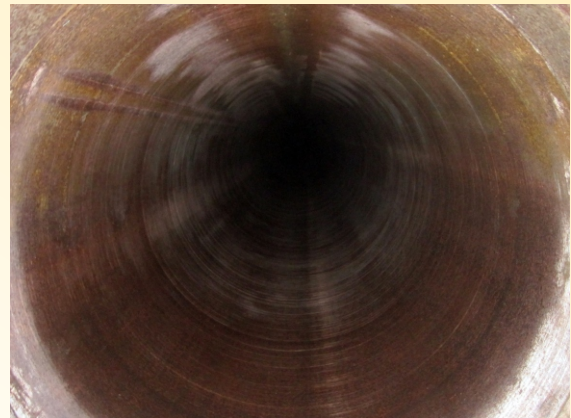


Corrosion protection you can Count on.

Riser Preservation



Before



After

Benefits

- ▶ Health, safety and pollution control
- ▶ Multi-metal protection, ferrous and non-ferrous metals
- ▶ Temporary protection during in-plant processing
- ▶ Medium-term protection for shipment and storage
- ▶ Extended protection for lay-up, mothballing and field service
- ▶ Protect against humidity and aggressive atmospheres as well as against corrosive industrial, marine and tropical atmospheres
- ▶ Protected parts are immediately ready for use
- ▶ Our barrier coatings are easily removed with conventional cleaning methods
- ▶ Does not alter most material properties
- ▶ VCI protect any size product from tiny electronic devices to large containerized shipments



Quality asset protection starts with Oceanics

Our Offices

Please contact us by email enquiry@oceanics.com.sg your email will immediately be referred to the correct department & recipient.



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