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**Attention: Editor**

**March 26, 2019**

**PRESS RELEASE**



## Case Histories Highlight Success of Cortec® Water-Based Rust Preventatives for Nearly Two Decades!

Cortec® has released two new case histories and updated another on the successful use of water-based rust preventatives for protecting large marine diesel engine cooling water systems. The story starts back in 1999, when a large engine producer discovered corrosion problems after test running its new engines for several hours. The water being cycled through the cooling water system came out tainted by red rust, causing the manufacturer to waste several thousand gallons of water daily. By adding VpCI®-379 water-based rust preventative to the test water at 20%, the corrosion problem was solved, and the new engine blocks looked in pristine condition upon arriving at their destination.





Based upon more than a decade of successful use of this water-based rust preventative, another large engine producer adopted a similar solution in 2011 for the protection of its locomotive engines. The engines were shipped around the world to places like Kazakhstan, where they needed protection for as much as two years of storage in harsh outdoor conditions. Cortec® offered the same method of protection, this time recommending

VpCI®-377 as a newer version of VpCI®-379. As before, VpCI®-377 was added to the cooling water at 20% and cycled through the locomotive engine cooling systems before being drained, tested for proper concentration, and reused. The successful method continues in use today.

In 2018, almost two-decades after the first engine manufacturer implemented VpCI®-379, another division of the same company was also struggling with corrosion from running test water through its new locomotive engine cooling systems. The division wanted to be able to protect against corrosion during in-process storage as well as during shipment of the engines. An additional challenge was that the locomotive engines would be stored temporarily outdoors in freezing temperatures. Since VpCI®-379 was already in the company specs and had been successfully used by the first division since 1999, the locomotive engine division also opted for the addition of VpCI®-379 to its cooling water at 20%. This time, glycol was added at 20%, as well, to prevent freezing of any residual water in the locomotive engines after the solution was drained and the engines were stored outside. The water was cycled through the engine systems, drained, tested for proper concentration, and reused as appropriate, offering the necessary protection for the locomotive engine producer.



Although water-based rust preventatives represent a more environmentally responsible protection option than traditional oil- and solvent-based rust preventatives, full adoption of water-based options has been slow to come because of uncertainties about quality and cost-effectiveness. The successful long-term use of VpCI®-379 and VpCI®-377 helps calm these fears and demonstrates the viability of water-based rust

preventatives for protection in engine cooling systems and many other potential applications. Contrary to what may be expected, the most recent case history also shows that water-based rust preventatives can be effectively used for protection in freezing temperatures if proper precautions are taken.

To view the updated version of Case History 125, please visit:

[https://www.corteccasehistories.com/?s2member\\_file\\_download=access-s2member-level1/ch125.pdf](https://www.corteccasehistories.com/?s2member_file_download=access-s2member-level1/ch125.pdf)

To view Case History 622, please visit:

[https://www.corteccasehistories.com/?s2member\\_file\\_download=access-s2member-level1/ch622.pdf](https://www.corteccasehistories.com/?s2member_file_download=access-s2member-level1/ch622.pdf)

To view Case History 623, please visit:

[https://www.corteccasehistories.com/?s2member\\_file\\_download=access-s2member-level1/ch623.pdf](https://www.corteccasehistories.com/?s2member_file_download=access-s2member-level1/ch623.pdf)

To learn more about VpCI®-377, please visit:

[https://www.cortecvci.com/Publications/PDS/VpCI-377.377\\_Winterized.pdf](https://www.cortecvci.com/Publications/PDS/VpCI-377.377_Winterized.pdf)

To learn more about VpCI®-379, please visit:

<https://www.cortecvci.com/Publications/PDS/VpCI-379.pdf>

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Cortec® Corporation is the global leader in innovative, environmentally responsible VpCI® and MCI® corrosion control technologies for Packaging, Metalworking, Construction, Electronics, Water Treatment, Oil & Gas, and other industries. Our relentless dedication to sustainability, quality, service, and support is unmatched in the industry. Headquartered in St. Paul, Minnesota, Cortec® manufactures over 400 products distributed worldwide. ISO 9001, ISO 14001:2004, & ISO 17025 Certified.

Cortec Website: <http://www.cortecvci.com> Phone: 1-800-426-7832 FAX: (651) 429-1122

**VpCI-377/377 Winterized**

- Non-Removable
- Passes ASTM D-4627-B6 (Test Method for Iron Chip Corrosion for Water-soluble Metalworking Products) at 20% weight
- Excellent wetting properties
- No-Removal (no-removal) to products
- Can be diluted over 100:1 most conventional paint systems

**TYPICAL APPLICATIONS**

- This film coating for dry storage is:
- Cottages, hold or parts, finished parts, pans
- Storage and housing
- Trucks and printing equipment
- Structural and related metals
- Rails and rail stock
- Additive to new water systems

**PRODUCT DESCRIPTION**

VpCI-377 is a water-based concentrate designed as a complete replacement for oil-based rust preventatives for indoor protection of equipment and components. VpCI-377 is a corrosion preventative liquid that meets tough anti-rust requirements. The wide dilution range with water (5:200) allows flexibility to customize the length of protection required and the applied cost per square foot (sq. ft.).

VpCI-377 forms a solution in water and is applied to metal surfaces by spraying or dipping. In water, VpCI-377 does not always need to be removed, but if necessary, can be removed with conventional alkaline cleaners, such as Cortec® MCI-404.

VpCI-377 is also available in a cold weather version, VpCI-377 Winterized for a lower freezing point for the convenience of application and storage in cold temperatures.

\*Some Cortec® Technical Service to dilution recommendations.

**FEATURES**

- Protects ferrous and non-ferrous metals
- Water-soluble, safe to apply
- Very stable in hot water
- Will not chip/ flake/ rub/ wear
- Forms a clear, dry, hydrophobic film
- Easy to remove if necessary
- White and phosphate ester free

**METALS PROTECTED**

- Carbon steel
- Aluminum
- Stainless steel
- Copper
- Galvanized steel

**APPLICATION**

**Product Preparation:**

Add VpCI-377 to water and mix thoroughly. Spray, dip, or use in parts washers and clean tanks. Solution concentration can be maintained by reduction, or pH.

**VpCI-379**

**TYPICAL APPLICATIONS**

- Control fittings, tubular parts, machined, and honed metal components, electric motor housing, tanks, and printing equipment
- Protects finished parts, structural steel, untreated metal, bars, and rail stock
- Additive to parts washers and rinse water systems, hydroblasting, and hydroblasting

**ADD VpCI-379 to water as follows for:**

**Short term protection:**  
1 part concentrate to 10-20 parts water

**Medium term protection:**  
1 part concentrate to 10-20 parts water

**Protection up to 2 years:**  
1 part concentrate to 1-3 parts water

If removed is necessary for subsequent operations such as plating, the usual proprietary operators of alkaline washing or degreasing easily removes the coating. In many operations, removal is not necessary since coatings, or parts can be applied directly over treated surfaces at dilutions over 10:1.

**TYPICAL PROPERTIES**

Appearance	Clear amber liquid
pH	8-10.7 (basic)
Non-volatile Content	28-35%
Density	8.8-8.9 (kg/l) (1.1-1.05) (g)

**METALS PROTECTED**

- Carbon steel
- Cast iron
- Copper
- Aluminum

**FEATURES**

- Water-soluble
- Superior protection against humidity
- Eliminates leaching and leaching problems associated with oils
- Economical, can be diluted up to 1 part VpCI-379 to 20 parts water
- Easy to remove, if necessary, or paintable with common coatings
- MSDS 010-01-01-0200