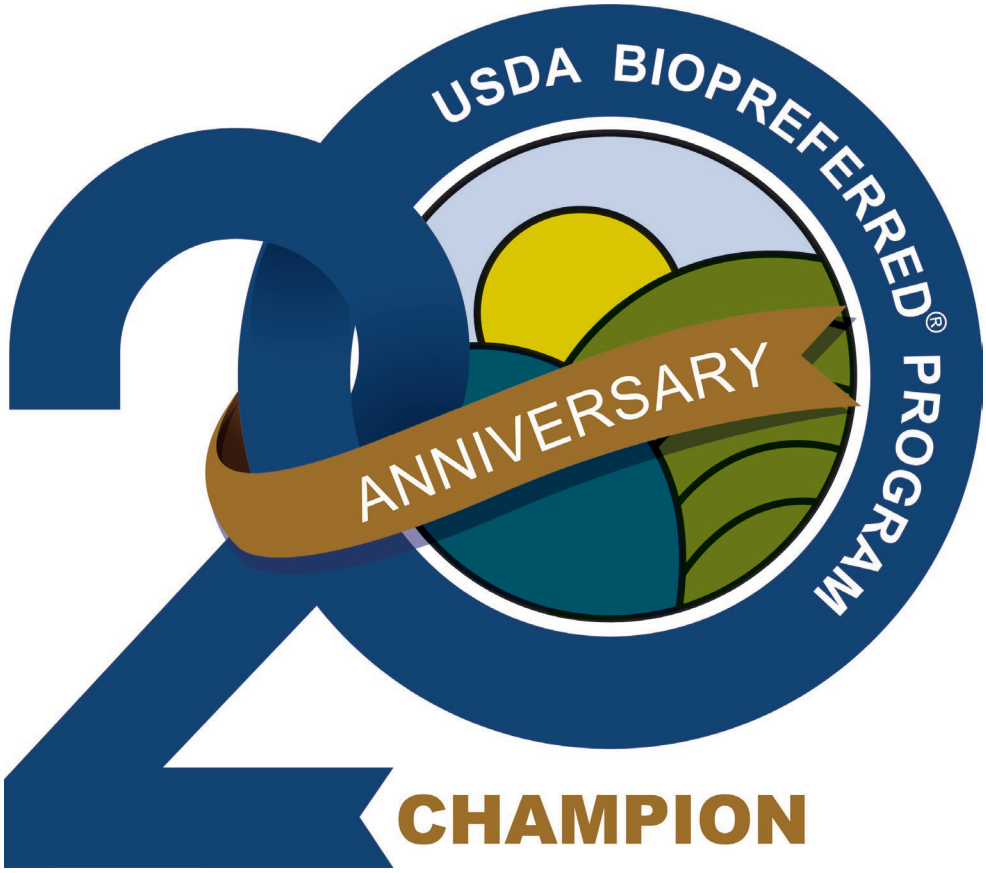
BioCortec® Newsletter

October 2022

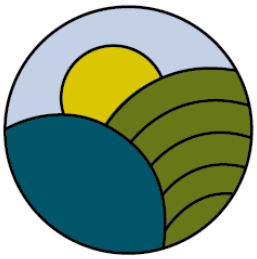
A BioPreferred® Champion!

Cortec® recently received the BioPreferred® Program Champion badge! In a letter awarding the badge to Cortec®, Andrew Jermolowicz (Director of the Business Development Division of the USDA Rural Business-Cooperative Service) wrote, "This badge signifies your long-term commitment to using renewable materials, reducing our reliance on petroleum, supporting the bioeconomy, and bettering the planet."

The USDA BioPreferred® Program* celebrates 20 years of biobased advocacy this year following the 10th anniversary of the USDA Certified Biobased Product voluntary certification and labeling initiative in 2021. At that time, Cortec® was named a USDA BioPreferred® Program Pioneer as one of the first 500 companies to earn a USDA Certified Biobased Product label.



Look for this symbol



which identifies our USDA Certified Biobased Products

Cortec® currently has 40+ USDA Certified Biobased Products and is regularly adding to this portfolio, which reflects Cortec's commitment to the bioeconomy and also serves as a clear, third-party confirmation of product renewable content claims. Join us in celebrating these milestones for the USDA BioPreferred® Program, Cortec®, customers, and the environment!

For more information, go to https://www.biopreferred.gov.

CERTIFICATION NEWS

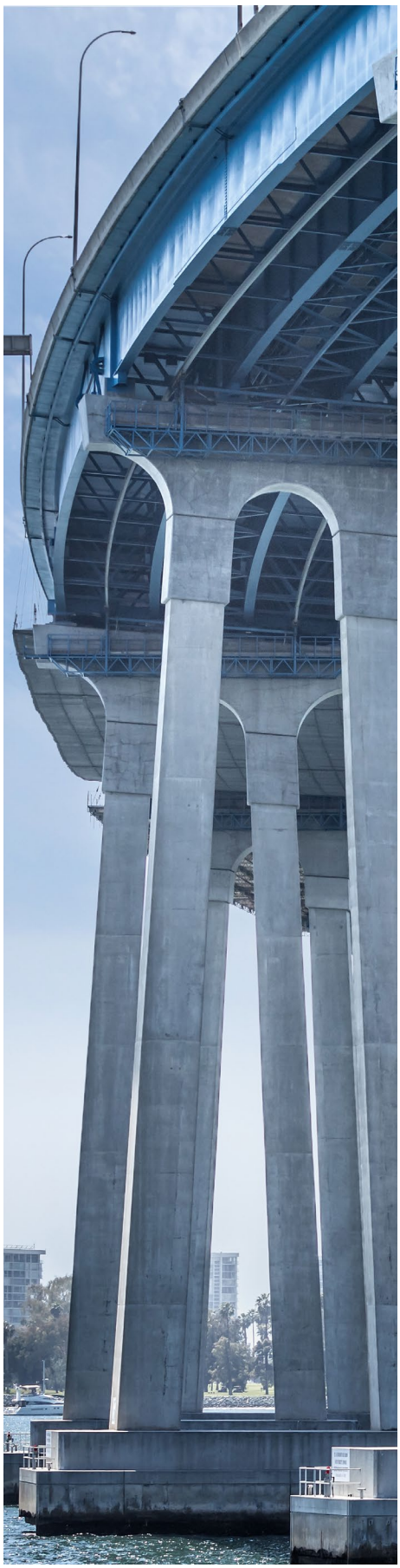
New TÜV Austria Film Certifications

If you haven't seen the news yet, our portfolio of 'OK Compost Industrial' certifications from TÜV Austria has grown significantly since our last Bio-Cortec® newsletter, when we announced the commercial compostability certification of Eco Wrap®. These TÜV Austria certifications offer third-party

verification that the following films meet the EN 13432 standard (equivalent to ASTM D6400) for compostability in a commercial composting environment:†

- **Eco-Corr Film® – TÜV Certified, April 25th**
  A commercially compostable film with contact and Vapor phase Corrosion Inhibitors for metals packaging
- **Eco Film® (Bags and Film) – TÜV Certified, May 16th**
  Commercially compostable film without corrosion inhibitors for use in organics recycling programs or for a variety of other purposes where a commercially compostable film or bag is desired.
- **Eco Works® 10 (Bags and Film) – TÜV Certified, May 16th**
  Commercially compostable films and bags (no corrosion inhibitors) with 10% biobased content.
- **Eco Works® 45 (Film) – TÜV Certified, May 16th**
  Commercially compostable film (no corrosion inhibitors) with 45% biobased content.
- **EcoShrink™ (Film) – TÜV Certified, May 16th**
  Commercially compostable film (no corrosion inhibitors) with 45% biobased content – designed for shrink-wrapping applications.

† These products are intended to be composted in a commercial composting facility operated in accordance with best management practices. Check locally to see if such a facility exists in your community and if they will accept these products. Not suitable for backyard composting.



New DOT Approvals for MCI® Biobased Content Admixture!

As part of our MCI® Technology vision to help the construction industry go From Grey to Green™, we use a portion of biobased content in several of our Migrating Corrosion Inhibitor™ admixtures. When these admixtures are added to a state's DOT approved products list, it gives engineers in that state the opportunity to specify the admixtures in DOT bridge or infrastructure products. It also lends confidence for use of MCI® admixtures in private projects throughout the state.

Text and chart continued on next page.

MCI® Admixtures on DOT Approved Products List				
State/ Province	**MCI®-2005** (USDA Certified Biobased Product – contains 67% USDA certified biobased content)	**MCI®-2005 NS** (contains 27% biobased content per ASTM D6866)	**MCI®-2005 AL** (contains 20% biobased content per ASTM D6866)	**MCI®-2006 NS** (contains 25% biobased content per ASTM D6866)
California		X		
Colorado		X		
Idaho	X			
Iowa		X		
Kentucky	X	X		
Maine		X		
Massachusetts		X		
Minnesota		X	X	
Ohio	X	X		
Pennsylvania		X		
South Carolina	X	X		X
Arizona (New!)		X		
Kansas (New!)		X		
Louisiana (New!)		X		
Mississippi (New!)		X		
Montana (New!)		X		

MCI® Admixtures on DOT Approved Products List, cont.				
State/ Province	**MCI®-2005**	**MCI®-2005 NS**	**MCI®-2005 AL**	**MCI®-2006 NS**
Oklahoma (New!)		X		
Tennessee (New!)		X		
British Columbia	X			
Ontario		X	X	

We are therefore excited that MCI®-2005 NS, which contains 27% biobased content per ASTM D6866, has recently been added to the DOT approved product lists in seven more states/provinces! See which states include MCI® biobased admixtures on their DOT approved products lists above (contact us for a full list of other MCI® products approved for DOT use).

VCI Paper Options from Our Portfolio of USDA Certified Biobased Products

Is there a viable biobased packaging alternative to plastic—especially when it comes to corrosion protection? Our portfolio of USDA Certified Biobased Product VCI papers is a great place to turn!

CorShield® VpCI®-146 is our flagship VCI paper. It contains 92% USDA certified biobased content and is fully recyclable. VpCI®-146 Creped Paper offers the same protection in a creped version that offers more buoyancy for delicate parts.

EcoShield® VpCI®-144 contains 69% USDA certified biobased content and offers moisture and grease resistance in addition to corrosion protection. It is a great alternative to traditional moisture barriers that normally rely on wax or polyethylene coatings for barrier resistance and therefore create obstacles to recycling.

EcoShield® Barrier Paper contains 65% USDA certified biobased content. It is a recyclable moisture and grease barrier paper for use where corrosion inhibitors are not needed.

The VpCI® Papers mentioned above are a great way to help users replace plastic with a product made from renewable resources. In some industries, it is also a great way to add that extra bit of cushioning or moisture absorption sometimes needed when packaging delicate or warm metal parts! Contact us for further technical help choosing the right packaging product! https://www.cortec-packaging.com/contact-us/

USDA CERTIFIED BIOBASED PRODUCT
PRODUCT 92%
FP

CorShield® VpCI®-146

USDA CERTIFIED BIOBASED PRODUCT
PRODUCT 69%
FP

EcoShield® VpCI®-144

USDA CERTIFIED BIOBASED PRODUCT
PRODUCT 65%

EcoShield® Barrier Paper

BIOTECHNOLOGY UPDATES

MCI®-2061 Under the Microscope

Have you ever considered using MCI®-2061 to clean up concrete oil and gas stains on driveways, bridges, or parking ramp floors? Not only is this a great way to help with aesthetics—it is also a great way to make sure concrete surfaces are free of contaminants before applying a waterproofing membrane or other coating systems! A recent efficacy test allows a closer look at MCI®-2061 under the microscope and how it helps clean up the stains.

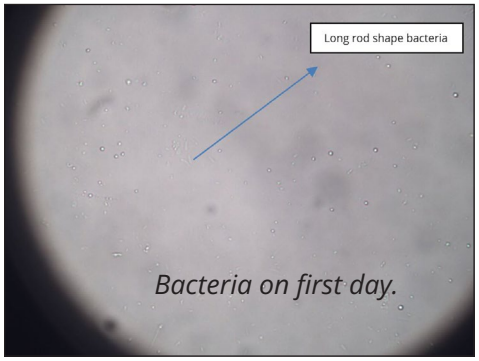
MCI®-2061 works in two ways. Biodegradable surfactants disperse oil droplets and perform the initial cleaning. MCI®-2061 spores then germinate into active microorganisms and perform secondary cleaning by actually digesting hydrocarbons. This activity increases as time goes on. For the test, three samples were prepared:

Sample #1 (control) – MCI®-2061 without bacteria or biodiesel
Sample #2 (control) – MCI®-2061 without bacteria but with biodiesel added
Sample #3 – MCI®-2061 with bacteria and biodiesel

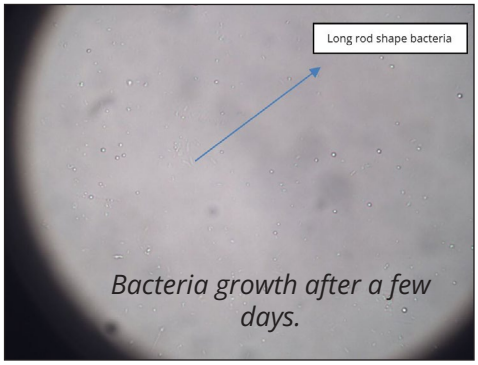
All samples were diluted with water at a ratio of 1:100 and were also examined under the microscope. COD, a measure of contaminants in the solution, dropped by 36.12% over one week in the sample of MCI®-2061 with bacteria and biodiesel. Significant growth of the spores and microorganisms could also be detected. Long, rod-shaped bacteria had formed by the third day, a sign that conditions were especially favorable for digestion of hydrocarbons. However, COD increased slightly in the samples without bacteria.

The results of the test and the closeup look at MCI®-2061 microorganisms are an exciting confirmation of the product's biological cleaning power and viability as a "green" cleaning solution for oil stains on concrete!

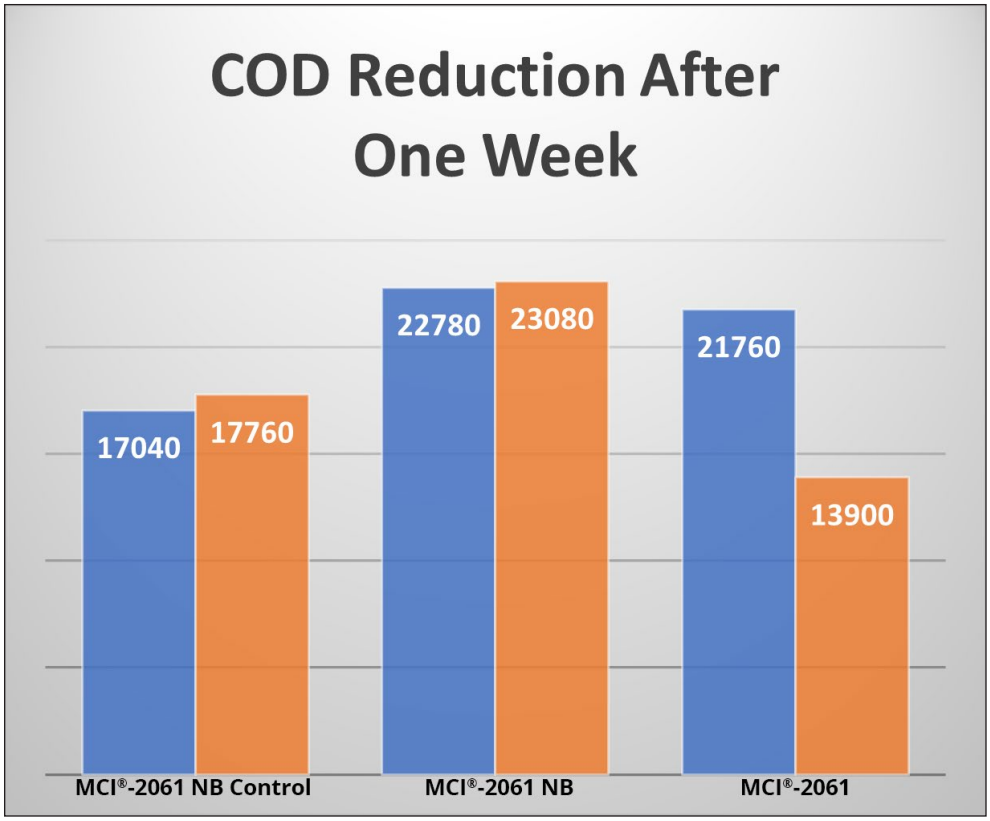
See a video of the microorganisms at: https://www.youtube.com/watch?v=kmAG-H9U1w0.



Bacteria on first day.

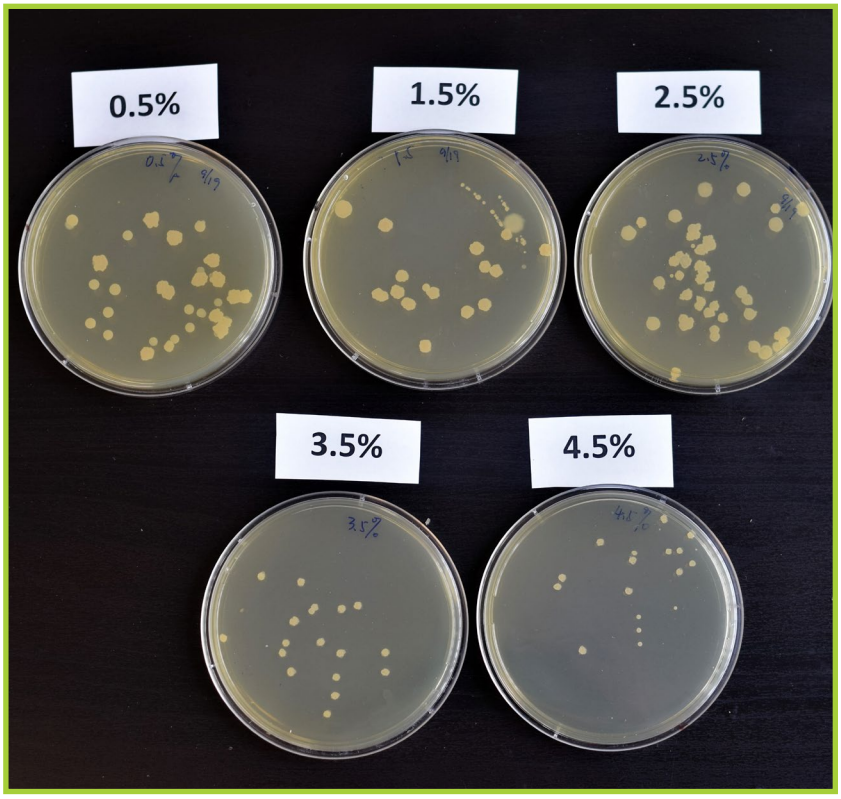


Bacteria growth after a few days.



Salt and Bacterial Growth: Do Bionetix® Biologicals Work in Seawater?

Our biotechnology subsidiary, Bionetix® International, specializes in biological cleaning and wastewater treatment in a variety of industries. In some cases, such as oil spill cleanup or petroleum wastewater treatment, the bacteria that do much of the work are exposed to high salt environments (e.g., seawater). Since salt can hinder the growth of the probiotics that biodegrade target contaminants, Bionetix® recently tested one of its microbial products, BCP35M™, to see how it fared at different levels of salinity.



Saltwater testing zone

BCP35M™ was added to samples of 0.5%, 2.5%, 3.5%, and 4.5% salinity solution (average seawater content is 3.5%). The probiotics were incubated at 95 °F (35 °C) for 18-24 hours, and growth of the microbial colonies was observed. At the end of the test, the lab saw no significant difference in the number of colonies that grew, although the size of the colonies was smaller in the presence of high salt concentration. This led the lab to conclude that, although it may take slightly longer for the beneficial bacteria to grow at this concentration, BCP35M™ is able to work in water with salinity as high as 4.5%. The results open an exciting door of opportunity for using Bionetix® biologicals to treat high salt wastewaters and clean up oil spills in marshes and in the ocean! Contact Bionetix® to discuss your specific situation in detail: https://www.bionetix-international.com/contact-us/

New Probiotics from Bionetix®!

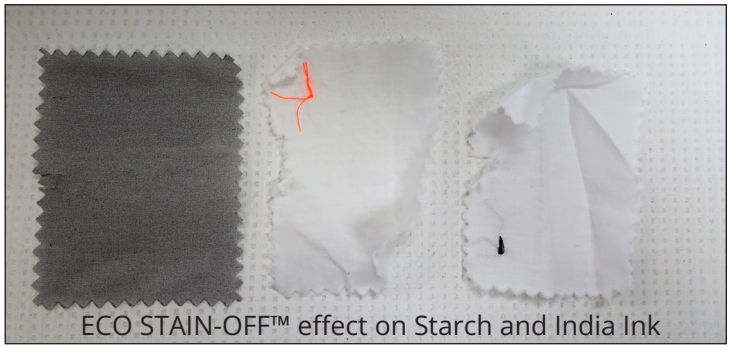
It has been exciting to see Bionetix® release several new biological products in the last half year. Here's a look at some recent releases.

ECO STAIN-OFF™ is a biological-based stain remover that works on a variety of fabrics, textiles, and hard surfaces. It contains naturally-derived free enzymes and probiotics that attack and digest stains. It is especially effective on enzymatic stains such as blood, grass, milk, chocolate, and chocolate milk. It is also great for cleaning other soils and stains such as wine, food, dirt, greases, oils, and tomato sauces.

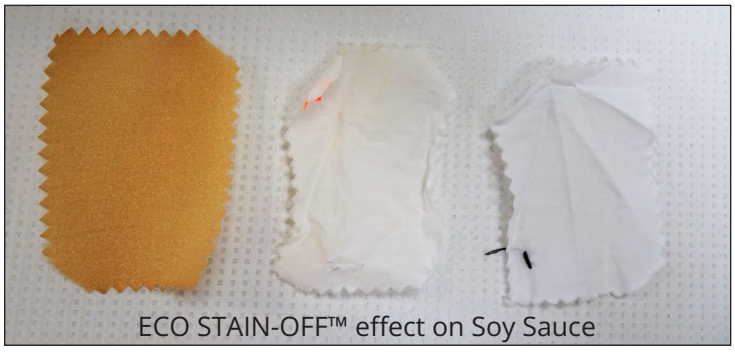
ECO-CLEAN-ALL TABS™ are a biodetergent concentrate in tablet form. These tablets are formulated to dissolve in water to create a liquid biological cleaning solution specifically designed to eliminate organic soils from a wide variety of surfaces including carpet, tile flooring, fabric, and upholstery. This powerful combination of biodegradable surfactants and probiotics digests grease, oil, protein, fat, starch, and other solid organic wastes to maintain a clean, odor-free facility. Probiotics in ECO-CLEAN-ALL TABS™ keep working to ensure that cleaning and odor removal continue long after the initial product application. The tablet format saves on shipping and storage space and reduces the need for plastic packaging!

ECO-DISPOSAL™ is a new foaming garbage disposal cleaner and freshener with probiotics! While standard garbage disposal cleaners often have to be used weekly to clean out the organic waste residues that can collect and produce bad kitchen drain odors, Bionetix® adds probiotics to its formula for extra, long-lasting garbage disposal maintenance power.

HYGIEA2401™ is a five-in-one probiotic cleaner / odor neutralizer concentrate for more efficient cleaning and deodorization. HYGIEA2401™ fights, controls, and eliminates bad odors (1) physically, by encapsulating molecules that cause bad odors; (2) chemically, by binding substances that cause bad odors; (3) biologically, by degrading and digesting organic odor-causing molecules; (4) thoroughly, by tackling the source of the smell and cleaning it off with strong, biodegradable detergents; and (5) pleasantly, by covering malodors immediately with specially-formulated long-lasting fragrances. HYGIEA2401™ is manufactured specifically for large volume accounts with formulation capabilities.



ECO STAIN-OFF™ effect on Starch and India Ink



ECO STAIN-OFF™ effect on Soy Sauce

How and Where to Use Cortec® Biobased Rust Removers

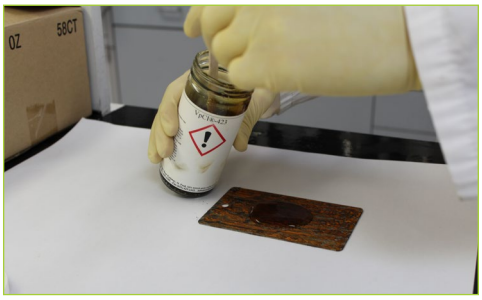
While sandblasting, water blasting, and grinding are commonly used for rust removal, these techniques can be cost-prohibitive, labor-intensive, or limited by location. When this is the case, Cortec® biobased rust removers offer an exciting alternative to sandblasting and other forms of mechanical rust removal to restore critical equipment and components to usable condition.

Cortec® rust removers VpCI®-422 and VpCI®-423 are relatively easy to use and are safer than many other harsh acids on the market for rust removal. Both are USDA Certified Biobased Products with a large percentage of ingredients commonly used in the food industry. VpCI®-422 contains 92% USDA certified biobased content, and VpCI®-423 contains 91% USDA certified biobased content. Both are NSF registered as A3 acid cleaners in the NSF Nonfood Compounds Registration Program.

How To Remove Rust

VpCI®-422 is great for dip bath applications and can be used in everything from pails to large tanks, depending on the size needed to fit the rusty component. After being immersed in VpCI®422 for a half hour or more (depending on the degree of rust), the part should be removed, wiped off, and rinsed in a VpCI®-410 Series alkaline cleaner to neutralize the acid and prevent flash rust. In a dip tank application, VpCI®-422 can be reused multiple times for greater economy.

VpCI®-423 is a gel version for use on vertical surfaces or other areas where the rust remover needs to cling. Parts that cannot be placed in a dip bath should be brushed with VpCI®-423 and left to sit for 20-30 minutes, wiped clean, and rinsed with a VpCI®-410 Series cleaner. The process can be repeated as necessary for heavier rust.



Rust removal in process

CORTEC CORPORATION
Environmentally Safe VpCI®/MCI® Technologies

4119 White Bear Parkway, St. Paul, MN 55110 USA
Phone: (651) 429-1100, Fax: (651) 429-1122
Toll Free: (800) 4-CORTEC, E-mail: productinfo@cortecvci.com

Keywords: BioCortec, BioPreferred Program, USDA Certified Biobased Products, bioeconomy, compostable film, concrete admixtures, DOT approved products list, VCI paper, probiotics, Bionetix, Cortec