BioCortec® Newsletter

November 2021

A Continuing Pioneer in Biobased Solutions

In keeping with our growing portfolio of USDA Certified Biobased Products at Cortec®, we were proud to be named a "BioPreferred® Program Pioneer" just this summer! The badge was awarded to us for our role as one of the first 500 companies to receive a USDA Certified Biobased Product label after the program was launched 10 years ago.*

In his official letter of recognition to Cortec®, Andrew Jermolowicz, Director of the Business Development Division of the USDA Rural Business Cooperative Service, stated the following:

> As the USDA BioPreferred® Program celebrates the 10th Anniversary of our certification and voluntary labeling initiative, we want to recognize you as a BioPreferred® Program Pioneer and show our appreciation for businesses like yours that showed faith in our mission. . . . This badge signifies your long-term commitment to using renewable materials, reducing our reliance on petroleum, supporting the bioeconomy, and bettering the planet through innovation. . . . When your organization took those early steps to earn certification for your biobased products, you helped grow this country's bioeconomy and establish the BioPreferred® Program as the premier government authority to verify biobased product claims.

Two of our most recent USDA Certified Biobased Product labels were awarded to corrosion inhibiting products in our water treatment line.

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

S-10 F Boiler Additive earned the label in April, confirming that it contains 82% USDA certified biobased content. This technology can be used standalone or as a water treatment formulation "building block" to fight the corrosiveness of carbonic acid that forms in steam and condensate lines from dissolved carbon dioxide. It can be added directly to the steam or condensate lines as a batch or continuous treatment during operation. (Learn more here: https://www.cortecvci.com/s-10-f-boiler-additive-earns-the-usda-certified-biobased-product-label/.)

EcoLine® AL-Corr™ is a brand-new corrosion inhibitor treatment designed to provide protection to the internal surface of aluminum irrigation pipes while the irrigation system is in use, as well as during times of intermittent irrigation water flow. It is formulated with biodegradable materials that are approved for use in personal care products and food preservation. EcoLine® AL-Corr™ contains 81% USDA certified biobased content. (Learn more here: https://www.cortecvci.com/press-release-cortec-presents-a-bio-based-answer-to-aluminum-irrigation-pipe-corrosion/.)

We are honored to be a pioneer in the development of biobased corrosion inhibitors and look forward to continuing to pioneer new biobased solutions for the future!

Revolutionary Developments in Biodegradable VCI Paper Eco-Bio™ Technology!

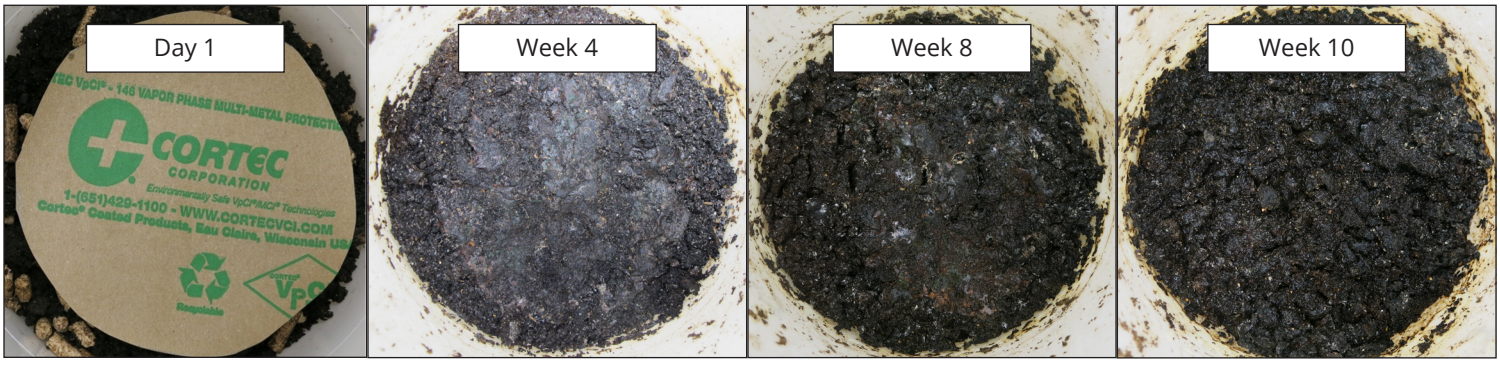
Since its inception, our company has been looking into ways to keep the environment cleaner while offering top quality corrosion protection. With packaging pollution an ever-increasing concern, we were excited to announce in August the addition of Eco-Bio™ Technology to our best-selling CorShield® VpCI®-146 Paper. This paper incorporates biodegradable Vapor phase Corrosion Inhibitor Technology and enhances the biodegradable and compostable characteristics of a naturally sourced paper substrate that provides reliable corrosion protection on both sides.

CorShield® VpCI®-146 is an example of the circular economy in multiple ways. On the sourcing side, it contains 92% USDA certified biobased content. It is also made from 100% recycled content paper. At the end of the product life cycle, it can be recycled into new paper products. With its new Eco-Bio™ Technology, it is also designed to be commercially compostable.

CorShield® VpCI®-146 Paper recently passed the compostable disintegration testing criterion of the ASTM D6868 standard for commercial composting. This portion of the standard requires less than 10% of the original product mass to remain at the end of 12 weeks of composting. CorShield® VpCI®-146 met this criterion in 10 weeks and is an excellent example of our ambitious R&D initiatives to create environmentally responsible yet practical corrosion solutions for everyday use. Learn more about CorShield® VpCI®-146 Paper here: https://www.cortecvci.com/press-release-cortec-unveils-revolutionary-biodegradable-vci-paper-with-eco-bio-tech-

Progress in Disintegration

Paper Tested	Weeks Needed to Meet the Compostable Disintegration Criteria (Residues <10% Original Film Mass, ASTM D6868)
CorShield® VpCI®-146	10 Weeks



Biobased Ideas for Winter Corrosion Protection

Get ready for winter with these biobased products to fight deicing salt corrosion!

Whether we like it or not, winter is on its way to the Northern Hemisphere. That means deicing salts will soon be hitting the roads to make travel safer from slippery conditions. It also means cars and trucks will fight another battle against seasonal corrosion from high-chloride road spray. Fortunately, there are two great ways to dampen its destructiveness.

1. Add a corrosion inhibitor additive to deicing salts before application.
2. Wash the salt off the vehicles as soon as possible.

For the first task, we offer a range of M-605 deicing salt additives. The M-605 PS version contains 98% USDA certified biobased content. M-605 PS comes as a powder and is most effective in $CaCl_2$ based deicers for protection of both ferrous and aluminum alloys. For the second task, our FlashCorr® VpCI® presents a highly effective biobased cleaner that contains 64% USDA certified biobased content. FlashCorr® VpCI® is extremely good at neutralizing and removing even the harshest salt deposits on any metal surface. As a rinsing agent, it can be used to promote an extended vehicle service life through regular preventative maintenance. Learn more about this dual approach to deicer corrosion: https://www.cortecvci.com/press-release-cortec-offers-a-dual-approach-to-fight-deicing-salt-corrosion-this-winter/

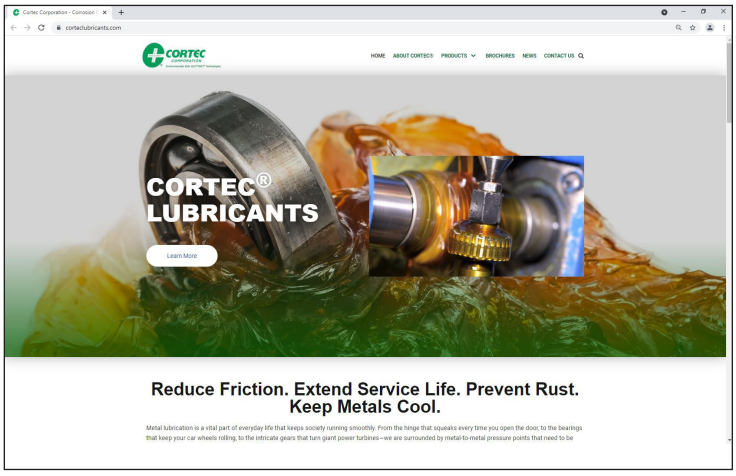
Consider the Options: Biobased Lube Ideas for Specific Industries

This summer, we unveiled our new Cortec® Lubricants website, organized by the following categories:

- Greases
- Lubricants
- Oils and Additives
- Metalworking Fluids

Several categories include one or more biobased product, typically identified by the EcoLine® brand name. A number of these were highlighted during our lubricant focus month, when we explored how our EcoLine® biobased portfolio can be used in different industries. Here are some of the ideas that came up:

- Sustainable Forestry: Use EcoLine® Bearing, Chain, and Roller Lube to lubricate chainsaws and harvester heads. Apply EcoLine® Heavy Duty Grease to extreme pressure points on high-tech logging machinery.
- Offshore Applications: Apply EcoLine® Wire Rope Grease to wire rope, EcoLine® Drill Rod Grease to drill rods, and EcoLine® Bio-based Grease powered by Nano VpCI® for extended layup of NLGI grade 3 grease points.

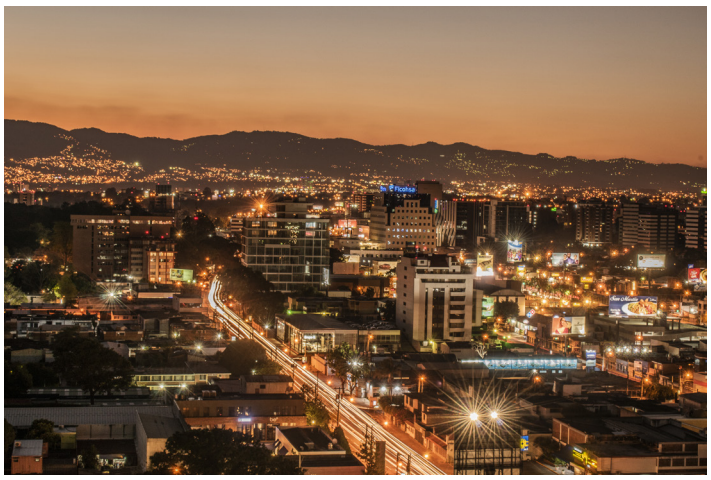


- Transportation: Apply EcoLine® Fifth Wheel Grease on semi-trucks. Lubricate rail curves with EcoLine® Rail Curve Greases (Winter and Summer versions).
- Farming: Bring renewables "back to the farm," so to speak, by using EcoLine® ELP and EcoLine® CLP for general purpose lubrication/penetration tasks.

Learn more about these and other products at our Cortec® Lubricants site today: https://corteclubricants.com/

Biotechnology Update

Our Canadian subsidiary, Bionetix® International, represents our third level of technological advancement as a specialty chemical company delivering environmentally responsible solutions to all kinds of industries. Bionetix® relies on good bacteria to efficiently clean up targeted types of waste and is seeing exciting results around the world. Here are some recent examples!



Guatemala – Restaurants

Our distributor ECOTEC is seeing great results from BCP22™ and ECO-DRAIN™! It currently supplies these technologies to 68 restaurants to help maintain grease traps and reduce and prevent bad smells and drainage clogging. One customer is a very famous restaurant that saw a big improvement in grease trap odor and clogging problems after using BCP22™.

New Zealand – Dairy Farmers

A major dairy cooperative representing more than 10,000 farmers in New Zealand has recently endorsed BCP80™ for use in its associates' manure effluent ponds. The product was trialed as a possible solution to problems in wastewater lagoons for manure storage and is now beginning to be introduced to several farmers who have signed on for a monthly subscription to treat their manure waste!

Russia – Fish Canning Factory

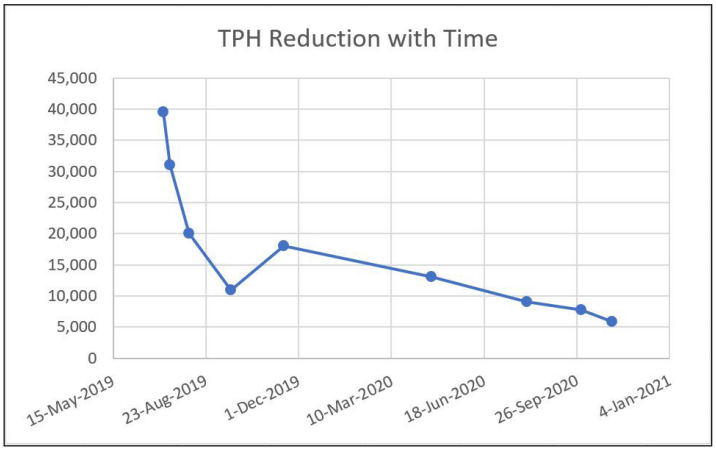
A canned fish factory that operates 24/7 in Russia started using BCP22™ and ECO-TRAP™ to reduce the grease buildup in its grease trap. The surface of the water was completely covered with grease, which can degrade more slowly in the presence of the seawater used in the factory's processes. Within two months of treatment, 70% of the surface fat had already cleared up, and the factory was looking to experiment with similar remedies at other locations.

Asia – Shopping Center

One large city shopping center in Asia was having trouble with high levels of FOG (fat, oils, greases) in its sewage influent, some of which came from a food court with high concentrations of cooking oil and other food wastes. The total organic fat, oil, and grease value ranged from 110-135 mg/L, with BOD at 640-980 mg/L. After applying BCP655™, BCP22™, and BIOBLOC22™ to different parts of the wastewater system, the organic FOG decreased 25-35% and BOD fell to <50 mg/L, indicating the successful activity of the bacteria at work.

Bulgaria – Soil Bioremediation

An oil and gas extraction company teamed up with an engineering company to do experimental bioremediation with a pile of hydrocarbon-contaminated soil in Bulgaria. Initial measurements showed 39,574 mg/kg of petroleum products in the soil. Moisture was adjusted and BIOSURF™ and BCP35S™ were applied to the soil along with key nutrients and periodic aeration. Although the testing was interrupted by COVID and later by freezing winter temperatures, the TPH (total petroleum hydrocarbon) level dropped approximately 85% from July 2019 to November 2020.



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