





EXCITING NEWS FROM TÜV AUSTRIA!

May 16th was an exciting day for Cortec[®] Laboratories in the area of commercially compostable film* R&D. On this day, TÜV Austria issued six 'OK Compost Industrial' certi-





- EcoShrink™ (film)
- Eco Film[®] (bags and film)
- Eco Works[®] 10 (bags and film)
- Eco Works[®] 45 (film)

This is an exciting achievement as Cortec[®] seeks to both serve and promote the growing interest in "greener films" technology in society today!

* This product is 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 this product. Not suitable for backyard composting.





EcoShrink™

Eco Film®

Lab News

Meet Our New Product Development Chemist

We are pleased to introduce our new Product Development Chemist, Colin Gardner, who will be supporting us in the maintenance of current



chemistry formulations and the development of new technologies, particularly for our line of Migrating Corrosion Inhibitors (MCI[®]) for concrete.

After receiving a degree in Chemistry, Colin spent seven years in the fields of heterogenous catalysis and metal finishing/electrodeposition. Colin explained that "both fields are driven by understanding the chemistry of surface interactions. At Cortec[®] Corporation we harness these same kinds of interactions in creating corrosion inhibitors. After all, corrosion starts at the surface."

Learn more about Colin here: <u>https://www.cor-</u> <u>tecvci.com/news-alert-a-new-chapter-opens-</u> <u>for-cortec-corrosion-inhibitor-development/</u>

Cortec® Laboratories Represented on Renewables Panel

We were honored to have Ming Shen, Ph.D., represent us in March at the fourth annual "New Uses Forum 2022" hosted by AURI (Agricultural Utilization Research Institute) in partnership with Compeer Financial and Georgetown University's Rural Opportunity Initiative. The event is sponsored by the MN Department of Agriculture and Minnesota Soybean Research & Promotion Council, among others, and seeks to explore how sustainability, innovation, and agriculture investment fit together.

As our Sr. Scientist and Manager of Green Chemistry Initiatives, Ming joined a panel of experts on the topic of "Bioindustrial Materials, Trends & Opportunities" to share from her own experiences with USDA Certified Biobased Product development at Cortec[®]. Ming and others on the panel represented different aspects of the biobased/renewables value chain and each shared a five-minute presentation followed by an engaging Q&A discussion on the sourcing of renewable products. Ming also had some great networking opportunities to discuss

- The possibility of conducting a field trial on one of our newer biobased products
- The chance to consult a soybean industry expert for biobased product distribution advice

We look forward to seeing how these developments unfold as we continue to drive biobased R&D forward at Cortec[®] Laboratories!



Lab News

USDA Certified Biobased Product Portfolio Continues to Expand

Our portfolio of USDA Certified Biobased Products continues to expand. Cortec[®] Laboratories plays a critical role in this process by not only determining which renewable materials to use in product development, but also by submitting product samples and overseeing the label application process. Below are the three biobased product labels we have most recently announced.

VpCI®-641 Hydrotest Corrosion Inhibitor

VpCI[®]-641 provides corrosion protection during hydrostatic testing and in some cases can be used in closed loop cooling systems filled with fresh water. VpCI[®]-641 PTSA includes a PTSA tracer option that makes it easier to monitor proper concentration for ongoing effectiveness in closed loops and reused hydrotest water.



Both contain 69% USDA certified biobased content and can be used at fairly low concentration levels for greater economy and lower conductivity. Learn more: <u>https://www.cortecvci.com/press-release-vpci-641-hydrotest-corrosion-inhibitor-earns-usda-certified-biobased-product-label/</u>

EcoAir[®] Biobased Outdoor Coating powered by Nano VpCI® (New Product!)

EcoAir[®] Biobased Outdoor Coating powered by Nano VpCl[®] is a ready-to-use temporary coating designed for severe marine and high humidity conditions. It comes in a convenient EcoAir[®] spray can and leaves behind an oily protective film that does not dry and



offers outstanding rust prevention in outdoor applications.* The product contains 65% USDA certified biobased content. Learn more: <u>https://www.corteccoatings.com/2022/02/23/press-release-</u> ecoair-biobased-outdoor-coating-new-addition-to-cortec-sustainable-corrosion-solutions/

S-8 Food Can Corrosion Inhibitor

S-8 contains 71% USDA certified biobased content. It is designed for corrosion protection of sealed food cans during washing and sterilization. Newly packed and sealed cans pass through hot steam for sterilization, sometimes followed by a cold-water bath, before ever reaching the warehouse, store, or pantry shelf. S-8 can



be added at a very low dose to the sterilization and cooling water to safeguard against the risk of flash corrosion from rinsing and sterilization. Learn more: <u>https://www.cortecvci.com/press-re-lease-s-8-food-can-corrosion-inhibitor-awarded-usda-certified-biobased-product-label/</u>

*Users should take care not to expose the coated materials to environments where the coating could be washed off by rain or similar elements.

Lab News

Cortec® R&D in Action

Part of the process for formulating products involves the evaluation of raw materials to see how they work and compare them against one another. With the samples at right, Ming Shen prepares to examine the contact angle at which filmforming corrosion inhibitors bead up on metal compared to a control. This will help her to better understand the properties of the materials and is just one of the many processes Cortec[®] R&D can use to evaluate the best raw material for the job.



ISO/IEC 17025 Repeatability Testing





As part of our ISO/IEC 17025 accreditation, Cortec[®] Laboratories is required to do periodic validation testing of each test method falling under our scope of accreditation. This takes the form of two different lab technicians performing the same test under the same conditions to verify that Cortec[®] Laboratories can get the same results.

The setup in these pictures is for validation testing of ASTM D4541 adhesion testing on VpCI[®]-386. The testing involves coating three metal panels at the same DFT (dry film thickness), then gluing "dollies" (i.e., metal plugs) to the coating on each panel using a special brand of two-part epoxy, which is supposed to adhere to the coating more strongly than the coating does to the panel.

The device pulls on the dolly with a consistently increasing force to measure how much strength is needed to pull the coating off the metal panel. From there we get our adhesion ratings for each coating!

Using Laboratory Testing to Evaluate Competitive Products

Cortec® recently released EcoClean® Scale and Rust Remover HP as a safer alternative to muriatic acid for scale removal. The chemistry was similar to another product on the market being promoted for its safety and effectiveness. Cortec® Laboratories stepped in to see how EcoClean[®] Scale and Rust Remover HP compared to this competitive product by performing laboratory testing.

The test involved seeing how much marble (calcium carbonate) would dissolve over time in a full-strength and 50% strength solution of each product. Over the first 20 hours, both products were very comparable in the amount of marble dissolved. After 20 hours, the effectiveness of the competitive product plateaued, but EcoClean® Scale and Rust Remover HP continued to dissolve more marble (see Graph 1).

When both products were tested at half-strength, EcoClean[®] Scale and Rust Remover HP exceeded the effectiveness of the competitive product from the start (see Graph 2). Cortec® Laboratories' testing also demonstrated that EcoClean[®] Scale and Rust Remover HP did not damage most coatings and prevented flash corrosion.

Test results gave Cortec[®] Laboratories the green light to release EcoClean[®] Scale and Rust Remover HP as a competitive alternative to one of the most prominent safer fastest-acting products on the market.

EcoClean[®] Scale and Rust Remover HP is phosphate free and a low contributor to BOD/COD in effluents.

Learn more about EcoClean® Scale and Rust Remover HP here: https://www.cortecvci.com/pressrelease-much-safer-than-muriatic-acid-cortec-introduces-ecoclean-scale-and-rust-remover-hp/

Graph 1: Descaling Potency Over Time



Graph 2: Descaling Potency at 50%



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