BioCortec® Newsletter

October 2016

Cortec® Creates Fully Recyclable Moisture Barrier Alternative to Polycoated and Waxed Papers

One of the benefits of Cortec's line of innovative corrosion protection products is the availability of many environmentally friendly options—products and processes that require fewer environmental resources or implement materials that are easier to dispose without special permits or fees. One of these superior products is a new recyclable alternative to the polyethylene and waxed papers typically used for their moisture barrier abilities.

EcoShield® VpCI®-144 Super Barrier is a high gloss moisture barrier version of the corrosion inhibiting EcoShield® VpCI®-144 paper. The water-based barrier coating prevents moisture from reaching metal parts wrapped inside the paper and has rivaled the moisture barrier properties of polycoated and commercial waxed paper in past ASTM E-96 testing of water vapor transfer rate (WVTR). This is an important capability since poly and wax coatings are not recyclable through normal channels and therefore create an environmental problem. However, EcoShield® VpCI®-144 Super Barrier is environmentally safe and fully recyclable/repulpable into other types of paper products such as boxes, cardboard, and other corrugated materials.

EcoShield® VpCI®-144 Super Barrier combines these important moisture barrier qualities into one paper with oil and grease resistivity and the innovative corrosion protection of VpCI® Technology. VpCI® molecules on the inside face of the coated paper will vaporize and condense on the metal surfaces of parts wrapped inside, forming a thin protective film that protects both ferrous and non-ferrous metals. When the paper is unwrapped, the VpCI® molecules will evaporate off the surface of the metal part, leaving it protected and ready to use without further surface finishing or coating removal. Because it protects multi-metals, it eliminates the need to inventory multiple papers for different metal types.

There are many uses for EcoShield® VpCI®-144 Super Barrier, such as metal production, metal forging and die casting, metalworking, and protection of countless finished products:

- Engines
- Machinery
- Equipment
- Tools
- Appliances
- Electronics

With EcoShield® VpCI®-144 Super Barrier, it is possible to provide dual moisture and corrosion protection on metal parts and then to simply recycle the nitrite-free paper when finished!

Recyclable and Ready to Go: Cor-Pak® VpCI® Bubbles!

Another special recyclable corrosion protection product that was recently stocked and is ready to go at Cortec®/EcoCortec® warehouses in the US and Europe is Cor-Pak® VpCI® Static Dissipative Bubble Film. This recyclable film combines static dissipation and cushioning with the latest Nano VpCI® Technology. It protects a variety of metals and is an excellent choice for protecting electronic components from both corrosion and triboelectric charge generation during shipping. It is a great way to guard against the expensive failure that can result from corrosion on complex equipment.

Special Test Uses Biodegradable, Water-Based Corrosion Inhibitor in Recyclable Spray Cans

Offering corrosion protection solutions in eco-friendly spray cans is not a new concept at Cortec®, where the EcoAir® product line brings corrosion inhibitors to customers in recyclable air-powered spray cans.

This year, a special test was performed using EcoAir® VpCI®-337 to protect carbon steel, galvanized steel, copper, and aluminum panels enclosed in a 12.7 cubic foot (0.36 m^3) crate. The biodegradable waterborne vapor corrosion inhibitor, which protects metal parts and internal void spaces with a thin, environmentally friendly self-healing film, was found to effectively protect these multiple metal panels from corrosion. A full can will last an average of four and a half minutes of continuous spraying and reach an effective spray distance of approximately 40 inches (101.6 cm).

Besides the convenience of being able to easily transport and apply the time-tested corrosion protection of VpCI®-337 in a spray can, the bag-on-valve technology allows the user to spray the corrosion inhibitor in any direction—even upside down—and simply pop the top off the can,

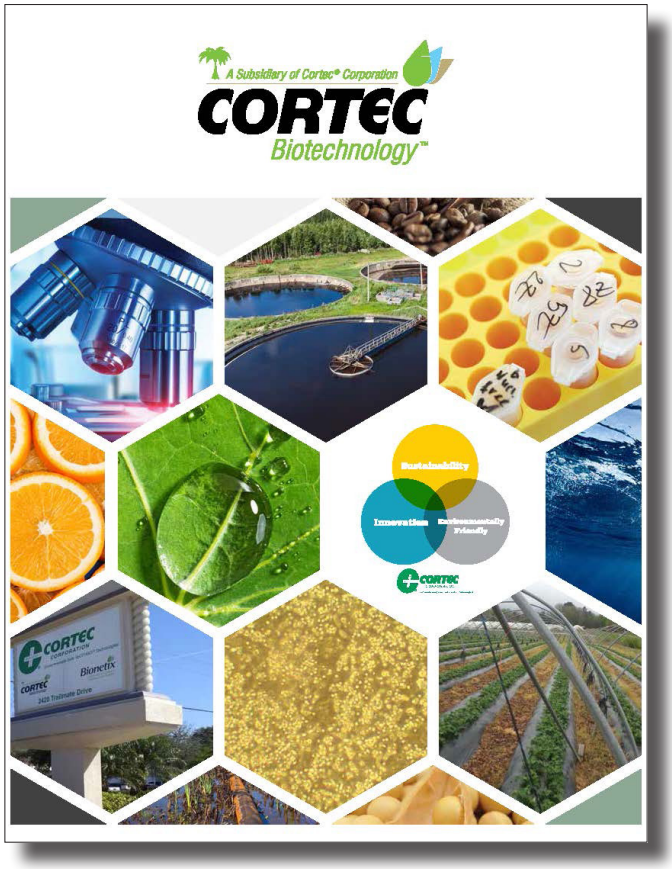
remove the inner bag, and recycle the aluminum can once the corrosion inhibitor has been used up.

VpCI®-337 is versatile and consistently successful in providing protection to basic metal, metalworking, and packaging industries, leaving a thin protective film that does not affect paintability, conductivity, appearance, or any other important property of metals or alloys. Use for

- Void space protection
- Edge spring for coils
- Double wall spaces
- Complex internal cavities
- Deep storage of key assets
- Pipes, spools, modules
- Post-weld touch-up

Cortec's EcoAir® VpCI®-337 Fogger is an excellent alternative to both hazardous corrosion inhibiting chemicals and environmentally damaging aerosol cans. It is a prime example of Cortec's commitment to finding effective environmentally friendly solutions!

New Cortec® Biotechnology Brochure



Cortec® recently released a new brochure showcasing the Cortec® Biotechnology Campus in Sarasota, Florida! The new brochure mentions CBC's opportunities for winter storage and shipment of "freezable" Cortec® products, such as Cortec's environmentally friendly water-based VpCI® coatings. It also discusses the exciting R&D processes for CBC microbiologists as they discover promising microorganisms in nature and work to develop them into stable products for natural waste cleanup and similar biological solutions. Read the entire brochure at the following link: *http://www.cortecvci.com/Publications/Brochures/Cortec_Biotechnology.pdf*

Developments At Cortec® Biotechnology Campus (CBC)

CBC Continues to Expand Its Natural, Environmentally Friendly Solution Capabilities!

CBC is allowing Cortec's commitment to discovering environmentally friendly biological solutions to reach beyond the realm of corrosion inhibitors into compatible fields of biological waste treatment and clean-up—needed in many of the same industries that benefit from Cortec's corrosion inhibitors!

An important part of this effort is the internal production of raw biological materials (microorganisms) at CBC, for use in the natural bioremediation products offered at Cortec's subsidiary, Bionetix® International. July 13th was a significant date as CBC sent out its first shipment of raw materials to Bionetix® for use as key ingredients in a number of Bionetix's natural biological products. CBC has since brought another microbial fermenter online to produce an additional biological material needed at Bionetix®. By producing these important raw materials on its own biotechnology campus, Cortec® will be able to reinforce its longstanding vision of vertical integration for better quality and costing of these environmentally friendly products.

Another sign of growth at CBC is the addition of two bio technicians that will enable CBC to offer better service and produce a higher volume of products. As they work in fermentation production, QC, and R&D, the new bio technicians will also be helping document procedures and improve organization to promote the consistent production of quality products.

The first new bio technician, Cameron Dillard, started working at CBC on May 9th. He received a B.S. in Biology from the University of South Florida, St. Petersburg, and brings with him experience as a lab technician and intern at Cigar City brewery in Tampa, Florida. He also volunteered in the water quality department at Clearwater Marine Aquarium in Clearwater, Florida.

Donald Schneider joined CBC as a bio technician on September 12th, coming from St. Louis, Missouri. He has a B.S. in biology from Truman State University. His experience includes time as a process technician in the manufacturing lab at bioMérieux medical library. He explored salt marsh restoration techniques while working for Maser's Research in Statesborough, Georgia.

Cortec® celebrates these signs of growth and looks forward to increasingly greater potential as CBC expands its capabilities for producing environmentally friendly products.

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Environmentally Safe VpCI®/MCI® Technologies

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