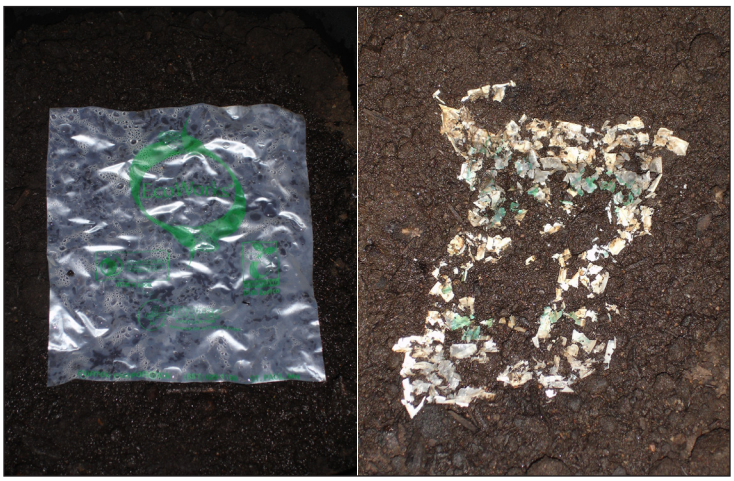
BioCortec® Newsletter

April 2017

Cortec® and Sustainable Packaging

A position paper (see ***pwgo.to/2006***) released by the Sustainable Packaging Coalition discusses the questionable use of biodegradable additives in petroleum-based products. In essence, the paper says that adding biodegradable additives to petroleum based plastics is not an improvement on sustainability. Rather, it compromises the strength of a resource that would be more sustainable if it were recycled. The Sustainable Packaging Coalition sees more environmental benefit in biodegradability if it is based on compostability, a term used for material that decomposes into stable organic matter in a non-toxic manner in a controlled composting environment within a certain amount of time.

While Cortec® avoids producing films that use unhelpful biodegradability additives, Cortec® does produce films that fit within both of the positive categories of sustainability mentioned in this paper. For instance, Cortec's Eco Film® and Eco Works® are available as truly compostable packaging films that can be made into film or bags of many sizes, such as those for waste disposal. Both films are certified as compostable by BPI and DIN CERTCO. Eco-Corr Film® is another biodegradable film that Cortec® offers with similar compostability properties. It meets NACE TM0208-2008 and German TL-8135-002 corrosion protection standards and successfully passes aerobic composting environment tests for disintegration and biodegradation per ASTM D6400-12. This film has the added benefit of containing corrosion inhibitors and is also available in an ESD (electrostatic dissipative) version.



Eco Works® Biodegradable Abilities

On the side of sustainability for petroleum-based plastics, Cortec® makes fully recyclable VpCI® and MilCorr® films to protect metal parts from corrosion. Unlike some companies that have been called into question, Cortec® does not compromise the strength of these films by using biodegradability additives. Instead, Cortec® has always been careful to recycle its own VpCI® film production scraps and is working on new opportunities for expanding its recycling program to further benefit customers.

To learn more about Cortec's biodegradable and/or fully recyclable films, please check out the following products:

Compostable Films:

- **Eco Film®:** *http://www.cortecvci.com/Publications/PDS/EcoFilm_Compostable_Film.pdf*
- **Eco Works®:** *http://www.cortecvci.com/Publications/PDS/Eco_Works.pdf*
- **Eco-Corr Film®:** *http://www.cortecvci.com/Publications/PDS/Eco-Corr_ESD.pdf*

Recyclable Films:

- **VpCI®-126:** *http://www.cortecvci.com/Publications/PDS/VpCI-126_Blue.pdf*
- **MilCorr®:** *http://www.cortecvci.com/Publications/PDS/MilCorr_VpCI_Shrink.pdf*

Biodegradable Polymer Market Outlook

The global market for biodegradable polymers is expected to grow at a CAGR of more than 21% from 2017 to 2021 according to a new report released by Technavio. The market is being led by Western Europe, driven by greater customer awareness and maturity. A summary of this report can be found here: https://www.greenerpackage.com/compost_biodegrade/three_factors_driving_global_biodegradable_polymers_market.

Incorporating Biobased Corrosion Inhibitors into the Quest for Sustainable Construction

Cortec's MCI®-2005 Patented concrete admixture is a biobased corrosion inhibitor that travels through concrete to form a protective molecular layer on embedded steel rebar. Containing 67% USDA certified biobased content and certified to meet NSF Standard 61 for use in potable water tanks (Underwriters Laboratories tested), it presents itself as a safer more sustainable way to extend the service life of reinforced concrete structures.

USDA CERTIFIED BIOBASED PRODUCT
PRODUCT 67%

Such durability is an important part of sustainable construction, a global trend that has builders seeking to reduce consumption of materials and energy. Though durability and service life are additional sustainability factors too often taken for granted, a number of new structures in the Middle East are availing themselves of the opportunity to enhance durability by including MCI®-2005 in tall buildings such as the Burj Khalifa Tower in Dubai, UAE. MCI®-2005 was chosen out of a number of products evaluated for use in the substructure. It was an especially important consideration for a high chloride environment like the UAE where corrosive elements are rampant in groundwater, soil mineral deposits, and salt spray near the sea.

MCI®-2005 was also used in the podium substructure of the tallest residential building in the world, the Princess Tower, built in the same region of the UAE. According to service life calculations, the use of MCI®-2005 more than doubled the service life of the building at only 1/10 of a percent of the total construction costs.

Made from renewable materials, MCI®-2005 has the triple benefit of being a sustainable product, encouraging sustainability in reinforced concrete structures, and enabling users to earn certain LEED credits, making it a promising investment for builders around the globe.

Owing to MCI®-2005's certification to meet NSF Standard 61 for use in potable water tanks, and due to a positive past experience with MCIs in another project, a regional water authority in Spain chose to use Cortec's biobased MCI®-2005 in the construction of a water reservoir. This project was recently highlighted in detail in an article featured in the February 2017 edition of Concrete International magazine. The article is posted on Cortec's website at *http://www.cortecvci.com/Publications/Papers/Spotlight-Meyer.pdf.*

Cortec® Coated Paper Products: A Sustainable Alternative to Oil Coatings

Cortec® sees VpCI® coated papers as an important key to providing sustainable, environmentally friendly corrosion protection solutions to its customers. Made from a biobased renewable resource, paper coated with Cortec's Vapor phase Corrosion Inhibitors is an eco-friendly and more convenient way to protect metal parts from corrosion during shipping or storage.

Traditionally, metal parts have often been dipped in greasy rust preventatives to protect them from corrosion during shipping. This requires an extra step of cleaning before the parts can be used and may require extra disposal costs for hazardous waste.

With Cortec's variety of VpCI® papers, it is much easier to wrap metal parts in a piece of paper and allow the VpCI® to form a protective molecular layer against corrosion on the metal surfaces of the components. When the components are needed, they can simply be unwrapped, allowing the VpCI® molecules to disperse and leave a clean, ready to use metal surface. Almost all VpCI® paper products are fully recyclable and repulpable, providing the further benefit of avoiding hazardous disposal costs for oil coatings.

Cortec® has worked hard to provide a number of different VpCI® coated paper options for all-purpose corrosion inhibiting use as well as special situations:

- **CorShield® VpCI®-146** – Fully recyclable, premium corrosion inhibiting paper that conforms to performance requirements of MIL PRF-3420. *http://www.cortecvci.com/Publications/PDS/Corshield_VpCI-146.pdf*
- **EcoSonic® ESD Paper powered by Nano VpCI®** – A fully recyclable ESD paper that can be used to protect electronics/electricals from corrosion or can be used in versatile ways in the EMS and MEAS industries. *http://www.cortecvci.com/Publications/PDS/EcoSonic_ESD_Paper_Powered_by_NANO-VpCI.pdf*
- **EcoShield® VpCI®-144 Super Barrier** – A fully recyclable moisture barrier alternative to poly-coated and waxed papers. *http://www.cortecvci.com/Publications/PDS/EcoShield_VpCI-144_VpCI-144_Super_Barrier.pdf*
- **VpCI®-148 Grease Resistant Corrosion Inhibiting Paper** – A fully recyclable corrosion inhibiting paper that can be used to protect products that require lubrication. *http://www.cortecvci.com/Publications/PDS/VpCI-148_Paper.pdf*
- **CorShield® VpCI®-146 Reinforced Paper Powered by Nano VpCI®** – An extremely durable VpCI® paper that allows users to ignore normal handling issues found in non-reinforced packaging papers *http://cortecvci.com/Publications/PDS/Corshield_VpCI-146_Reinforced_Paper.pdf*

Cortec® has also recently released the fully recyclable EcoShield® Heat Sealable Paper. Though this is not a corrosion inhibiting paper, it offers a flexible option for industries to make their own custom-sized recyclable bags and envelopes that can be sealed simply by applying heat. *http://www.cortecvci.com/Publications/PDS/EcoShield_Heat_Sealable_Paper.pdf*

Featured Product: BioEmitter®, Patent Pending Rust Blocker Shield

Cortec's BioEmitter® offers easy-to-use protection from rust and corrosion on metals stored in enclosed spaces as large as 50 cubic feet (1.4m^3). Simply attach the environmentally safe BioEmitter® onto a clean surface inside an enclosed area, then relax knowing your tools, electric panels, or other metallic valuables are protected!

The BioEmitter® takes up less than 1 square foot of space and is conveniently packaged in a vented cardboard box; allowing Cortec's innovative Vapor phase Corrosion Inhibitors (VpCIs) to migrate throughout the surrounding space to form an invisible molecular shield on metal surfaces, sealing off air and moisture - even in the hardest to reach areas. The BioEmitter® provides long-term protection against corrosion even in the presence of adverse conditions including salt, moisture, airborne contaminants, H_2S, SO_2, NH_3, and others.

Cortec's BioEmitter® is made with biobased, renewable materials; the VpCIs are non-toxic and do not contain nitrates, silicones, phosphates, or heavy metals. They also have no adverse effects on electrical or chemical properties, and do not harm plastics, elastomers, or painted surfaces.

The BioEmitter® protects a wide variety of metals from rust and corrosion. These metals include mild steel, galvanized steel, brass, solder, cast iron, silver, aluminum alloys, magnesium alloys, copper, and copper-nickel alloys.

Typical Applications:

- Electrical cabinets
- Instrument cabinets
- Tool chests
- Storage lockers
- Trailers
- Gun safes
- RV storage holds
- Pool pump enclosures
- Boat storage cabinets
- Pick-up truck boxes
- Fishing tackle boxes.

With its easy-to-use compact size and high bio-based content, the BioEmitter® is convenient and safe to use. It is effective in polluted and humid environments and does not interfere with electrical, optical, or mechanical performance. It can be used in spaces larger than 50 cubic feet by simply hanging multiple BioEmitters in opposite corners of the area you need protected. Cortec® BioEmitter™ meets NACE Standard TM0208-2008.

Tradeshows

ISSA / INTERCLEAN NORTH AMERICA
SEPTEMBER 11-14, 2017
Exhibits: September 12-14
Las Vegas Convention Center
Las Vegas, NV, USA
Booth# 1370
(Bionetix)

AWT
SEPTEMBER 13-16, 2017
Devos Place and Amway Grand Plaza Hotel
Grand Rapids, MI USA
Booth# 306

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