

## Welcome to the Summer Edition of Leading Edge!

### CORTEC RECERTIFIED FOR 14001 (2004-2007)

by Art Ahlbrecht, VP of R&D

Greg Hocking, EMS Coordinator



In 1997 Cortec became one of the first companies in Minnesota to be certified by a Registrar Accreditation Board (RAB) company - in this case BVQI to the ISO

14001 standard. The 14001 standard describes a company that is dedicated to implementing and maintaining a system designed to minimize negative, and maximize positive impacts on the environment. Like many other 14001 certified companies, our significant aspects include pollution reduction/prevention, and adherence to the local, state, and federal rules and regulations. However, Cortec's 14001 environmental manual also describes procedures that stipulate Cortec will develop products and product lines that are helpful to our environment.

Two of the earliest developments of that kind were biodegradable films and the use of soy bean oil. More recent developments are the use of gluconates, soy bean protein, and the use of polylactic acid (from corn) in films.

Cortec has made this program - the use of sustainable/renewable resources - the major thrust of our 14001 environmental policy. We believe that the impact Cortec is making, and will continue to make, with this program is what 14001 companies should emphasize, and will in the future. Cortec is ahead of the curve in this vision and our BVQI certifying auditor agreed, as we are now recertified for another three years.

The laboratory continues to evaluate solvents, lubricants and inhibitors derived from sustainable resources, and our sales managers and distributors

find customers who recognize the benefits of using products derived from sustainable sources, such as soybeans, sugar beets, corn, and more.

We measure our success in our increasing purchases of tonnage lots of polylactic acid, sodium gluconates, etc. With the help of sales and distributors we may soon extend soy oil purchases from drum lots to tankers.

### FULL SPEED AHEAD ON A CHARTERED COURSE...

by Margarita Kharshan, Lab. Director

As you read this summer is well under way here at Cortec's headquarters in Minnesota.

This summer you will see us adding quite a few new products to the website and brochures, some of which are introduced in this Newsletter.

Here is a brief description of what to expect :

- New biodegradable films
- Extending MCI-line
- News in coating developments
- Penetrant for Food Plants
- Cortec's Bio-based products, etc



We feel that in this Newsletter we've addressed all of your suggestions, while continuously improving in all facets.

We thank you again for your continued support, patronage and for being able to share in our growth and pleasure, which, in the end, is why we are here in the first place!

Best wishes for a fabilous summer!

## BIODEGRADABLE PACKAGING

**We are proud to announce new developments in our biodegradable line of packaging products.**

### EcoSol

#### Water-soluble Packaging Solution

EcoSol is a water soluble, biodegradable polyvinylalcohol (PVA) film, ideally suited for many packaging applications. Water soluble PVA bags, sachets or pouches created from this film, provide a convenient, safe and economical delivery system for a wide range of products including detergents and cleaners, degreasers, concrete additives, pigments, biocides, water-treatment products, agricultural products, and others.



EcoSol film has excellent organic solvent resistance, which allows EcoSol pouches and bags to be used not only for dry powders, but also for liquid products.

EcoSol offers very good mechanical properties: tensile strength, tear strength, puncture resistance. These properties allow EcoSol to be used in a wide variety of rigorous applications.

Test Method	EcoSol	Low-Density Polyethylene Film
Tear Test (gf) ASTM D-1922	1093 (CD*)	989.33 (CD*)
Tensile Strength nominal (lb)	0.73 (MD*) 1.20 (CD*) (0.33/0.54 kg)	0.38 (MD*) 1.04 (CD*) (0.17/0.47 kg)
Impact-Puncture ASTM D 3420-95B (J)	1.05	0.04

\*Machine Direction (MD)/Cross Direction (CD)

EcoSol expands Cortec's line of biodegradable materials: after a few minutes of immersion, EcoSol dissolves in water leaving a harmless non-toxic aqueous solution of polyvinyl alcohol.

Once the solution of PVA comes into contact with microorganisms such as those found in water-treatment plants, conversion to carbon dioxide and water takes place within about 30 days.

This unique customer friendly product is available in roll stock and bags in a variety of dimensions and forms.

### Cor-Pak VpCI Bubble Bio Film

Cor-Pak VpCI Bubble Film, is now available in a Biodegradable form. This film is a low density polyethylene, containing corrosion inhibitors and an additive that will break down the film in months, once exposed to landfill conditions.



Cor-Pak VpCI Bubble Bio film offers excellent vapor, barrier and contact phase corrosion inhibition for most metals, including carbon steel, aluminum, copper, brass, silver and stainless steels, without leaving any film or residue on the surface. In addition, the corrosion inhibitors and polymers in Cor-Pak VpCI Bubble Bio film have no negative effects on sensitive surfaces such as optics, printed circuit boards, elastomers and other non-metallic surfaces.

The bubbles act as small cushions to protect the enclosed item from damage, and at the same time corrosion inhibitors are forming a monomolecular layer on the item, preventing corrosion from occurring. When finished using, discard the VpCI Bubble Bio film knowing that you are preventing landfill clogging.

Cor-Pak VpCI Bubble Bio conforms to MIL-PRF-22019D with respect to corrosion inhibition, and has applications such as cushioning, dunnage, void fill and interleaving, among others. Cor-Pak VpCI Bubble Bio is available in custom size rolls, sheeting or heat sealable bags.

## ANNOUNCEMENT!

### VpCI-126, Manufactured in Russia, is Approved by Avtovaz



Avtovaz - the biggest Automotive Company in Russia - well known for different models of VAZ, including Zhiguli, Fiat-124, VAZ-2131 Niva, VAZ-2120 minivan, and others, has approved VpCI-126 to be used for storage and shipment of their equipment. To gain approval rigorous testing was performed comparing VpCI-126 to films from other International companies. VpCI-126 film manufactured in Russia outperformed them all!

## EXTENDING MCI - LINE

### MCI Peel-off Coating

This water-based coating is developed for use on construction site to provide mechanical protection against nicks, abrasion, scratches, and over-spray to the surfaces that it covers. MCI Peel-off Coating can be used to protect non-porous surfaces such as walls, ceilings, floors, windows and light fixtures: one coating to do it all. In addition, MCI Peel-off Coating provides protection to the metals against atmospheric, salt and chemical induced corrosion.

MCI Peel-off coating represents the ultimate in non-solvent peelable coatings. It is well stabilized against brittleness, and it will not be softened or penetrated by most solvent-based paints. MCI Peel-off coating has extremely low VOC and meets the strictest VOC requirements.

The coating is stripped or peeled away prior to equipment use and will not leave residue.

MCI Peel-off coating is intended as a temporary, removable coating. This coating can be applied by spray, roll, brush, or dip. It provides a clear film which allows for inspection of the surface. The film can be peeled from the surface when it is thoroughly dried, leaving a clean, ready-to-use substrate.

## MCI® PRODUCTS IN THE NEWS

### GalvaCorr Case History

by Marlin Hansen, Coatings Consultant

GalvaCorr, our new cathodic protection coating, is working to halt corrosion in the 30-year old Maryland Avenue Bridge. The St. Paul Bridge Department checks its concrete bridges for salt content. Over 250 parts of salt per million is considered the corrosion point. The Maryland Avenue Bridge was at 3000 parts and showing visible signs of severe corrosion.



GalvaCorr to the rescue! In the fall of 2003 we applied a 220 square foot area (18.6 square meter) of GalvaCorr on the underside of the bridge. The coating's current collecting wires were electrically connected to the bridge rebars. Testing this May revealed that the coating was polarizing (charging) the rebars with galvanic current. Millivolt reading tests showed that the rebar corrosion in the "footprint" area of the coating has been suppressed. The bridge engineer is very happy with results and said he wants to coat the columns of the bridge this summer to be

able to save them from further degradation.

Cathodic protection systems have a proven record of being able to provide immediate corrosion suppression to rebar corrosion in chloride contaminated concrete structures. But only GalvaCorr is a room temperature coating that can be hand- or spray-applied. No other cathodic protection system can match the ease of application and cost of GalvaCorr.

Corrosion of metals is an electro-chemical process that generates tiny currents much like a battery. GalvaCorr is formulated with sacrificial metals that generate greater levels of current than the steel reinforcements of concrete structures. When connected to the rebars, this galvanic current polarizes the steel and stops the corrosion. It can provide cathodic protection for concrete balconies, parking ramps and bridges. Its corrosion suppressing action begins within hours of being applied to the structure.

### ***NEW DEVELOPMENTS IN HIGH PERFORMANCE COATINGS***

#### ***White Urethane Top Coat***

A two-part, high gloss, white urethane top coat VpCI-384 has been developed to compliment Cortec's VpCI-396 moisture cure urethane primer.

VpCI-384 has the normal advantages of a urethane top coat such as a 90 to 92 gloss rating, excellent UV resistance, extreme hardness, good flexibility, and excellent solvent resistance.

However, VpCI-384 has two significant additional advantages.

It has excellent adhesion to the VpCI-396 primer, even after it has been cured. Normally, a top coat will not stick to a fully cured VpCI-396 because VpCI-396 has such a good solvent resistance. This top coat also has a VOC under 3.0 lbs/gal, which is required by many end-users today. There are **no** highly toxic aromatic solvents in this coating.

#### **VpCI-368 Available in Colors**

VpCI-368 - one of our best temporary coatings - is now available in different colors: brilliant vivid green and black. VpCI-368, with these color changes, has been tested in the salt spray cabinet and showed no reduction in salt spray corrosion resistance. None of the other properties such as viscosity, solids, or weight per gallon have changed either.

These additional colors of VpCI-368 were developed per our customers' requests.

Additional colors are possible, but are restricted due to the yellowish tone of the basic resin system.

Now, temporary corrosion inhibiting coatings can be used to beautify a metal surface, and not just protect it. Color coding of metal surface is also possible.

### ***METALWORKING WORLD***

#### **Cortec VpCI-324 Goes Through Modification**

VpCI-324 is one of Cortec's oil-based products that conforms to the USDA H-1 rating. This



means that VpCI-324 can be used as a penetrating lubricant for food machinery where the penetrant may have incidental contact with food.

This updated version of VpCI-324 is formulated from

different food approved raw materials, and a set of special performance tests were performed. These included: penetrating through a crevice, wetting of bare metal and iron oxide, and water displacing properties.

The test results show that the old version of VpCI-324 was a good penetrant, but it needed a relatively long time to reach all the crevices and to wet pre-rusted and rust free metal surfaces.

The new formulation does not have these limitations. The modified VpCI-324 penetrates into the crevices and iron oxide layer at least twice as fast as the previous formula did. New VpCI-324 also is more effective in water displacing tests and provides better corrosion protection in humidity cabinet.

Additionally, the new VpCI-324 per your request can be manufactured in several viscosity levels. Also, modified VpCI-324 conforms to USDA H-1 rating and we already received positive feedback from our customers.

### *THINKING OUTSIDE THE BOX*

*by Ashish Gandhi, Sales Manager*

#### **Cross Industry Utilizing Cortec Corrosion Solutions**

Many of you know that Cortec has 300+ products/solutions for corrosion in various applications and industries. With such a vast array of products, sometimes we tend to focus only on obvious markets. For example, we know that Cortec has unique water treatment product for cooling towers and boilers. But do you know that our high performance coatings also have niche applications in that market? Here I will discuss one such case history.

#### **Nashville, Tennessee - Country Music, Barbeque, and corroding cooling towers?**

Our long time water treatment distributor, Melissa at Aquaphase, called us one day and told us that one of their new customers was having horrible problems with their cooling tower. This system had very poor control of inhibitors, and used bleach for biocide before Aquaphase took over, because of this the system experienced severe corrosion activity. Replacement of the tower could not be budgeted, hence they wanted to do something to extend the life of the tower.

Melissa knew that Cortec is a corrosion solution expert, as we have successfully solved corrosion problems for her in the past. So she called us again to find a solution for their new customer. Based upon our recommendation, the customer



used Cortec's high performance, moisture cure urethane coating - VpCI-396 - on the distribution deck of the cooling tower. The pictures shown are before, and then after, one year of performance.

Since then, Aquaphase has used Cortec's coatings, including our CorrVerter and VpCI-396 on cooling tower applications such as distribution decks and tower sumps, with great success. There are few other

water treatment companies that have taken this approach and created their own successful application since Melissa blazed the trail. Thank you, Melissa, for 'thinking outside the box'!



**Why not think outside the box?**

## MODERN CARBON - WHAT IS IT?

by Art Ahlbrecht, Vice President of R&D  
and Robert Boyle, Technical Sales Rep.

In response to the federal mandate signed into law in 2002 that requires federal agencies to buy "biobased" products, the USDA, EPA and ISU (Iowa State University) have been given the duty of determining scientifically what it actually means to be "biobased".

The scientific standard that has been selected is called carbon-14 dating. Many of you have likely heard of carbon dating. This procedure is used to determine how old dinosaur bones are, the approximate age of meteorites and was even used on the "Ice Man" remains found in recent years.

For the more familiar examples above, carbon-14 dating is used to determine "how old" a carbon molecule is. This radioactive procedure is reversed for the purposes of FB4P (Federal Biobased Products Preferred Procurement Program). Rather than determining "how old" the carbon contained in a product is, the carbon-14 testing is used to determine "how new" the carbon is.

As each "biobased" product has unique functions, there are different minimum concentrations of "new carbon" required for different products. For example, it is possible to have a light-duty lubricant to be 100% from annually renewable sources (i.e. vegetable oil). However, for more precise applications (such as corrosion control, motor oils, machining fluids), the number would have to be slightly lower to account for the different agents that must be added to allow the fluid to perform.

The government has therefore identified categories (and subcategories) of products that range from construction materials to plates and utensils. The overall purpose of the testing that is conducted by ISU is to determine what percentage of "new" carbon is currently feasible. Products that are at that percentage or higher, would then be approved. Federal agencies would then be required to give preference to these approved products whenever they purchase from that category.

While the process of determining minimum percentages for each category is still underway, we expect at least a couple of the categories to be finalized by year end. In anticipation of this, Cortec submitted 19 products for testing at ISU. In fact, Cortec's 19 products were included in the very first round of testing conducted and we have already received results back. Our products are included in six different categories and over 12 different subcategories. There is a high probability that as soon as the first couple of categories are finalized in the upcoming months, we will have at least one product in that category.

Stay tuned this summer for further details!

**What would you like to see in the next Leading Edge?**

**If you have suggestions, please let us know.**

**Call, write, fax, or e-mail us with your ideas!**



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Enjoy the Summer!

