

# Oil & Gas

PRODUCT NEWS

## OPTICAL GAS IMAGERS

OFFER OPTIONS FOR  
LEAK DETECTION

PAGE 10

PROPOSED PIPELINE  
PROTECTION EASES  
ENVIRONMENTAL CONCERNS

PAGE 14

WEBSITE PAIRS EQUIPMENT OWNERS  
WITH RENTERS ONLINE

PAGE 26



**'I rented it on AnyQuip'**

Canada's trusted contractor-to-contractor equipment rental network

OWNERS  
earn 40%  
on your idle assets

RENTERS  
save 30%  
on your rental costs

**AnyQuip**  
www.AnyQuip.com  
Sign Up for Free | 1 855 454 6900

# Avoid corrosion with effective preventative

Chemically bonded phosphate ceramics can extend equipment life and minimize costly pro

**T**he annual cost of corrosion is over 3 percent of the world's GDP, representing \$2.2 trillion in U.S. dollars, according to the World Corrosion Organization.

Economic sectors using large amounts of carbon steel exposed to atmospheric conditions or harsh processes can be particularly susceptible. At risk are many facilities like oil and natural gas tank farms, pipelines, and processing equipment. The challenge with carbon steel is that as soon as it is made it begins to corrode.

Because of the high cost of production downtime, repair and replacement due to corrosion, a growing number of proactive companies are going beyond traditional techniques that have only slowed corrosion. They are turning to a new category of tough, Chemically Bonded Phosphate Ceramics (CBPCs) that can stop carbon steel corrosion, extend equipment life and minimize the cost and production downtime required to recoat, repair or replace equipment.

## REDUCE CORROSION AND MINIMIZE DOWNTIME

While many industries fight corrosion due to rain, humidity or proximity to a marine environment, some companies must combat it in harsher condi-



tions where caustic chemicals may be present – such as the inside of certain industrial tanks.

When a large treatment facility in Texas sought to control corrosion in a number of mild steel equalization tanks, for instance, the status quo was unsatisfactory. Waste water can be very corrosive to mild steel and traditional barrier coatings cannot reliably withstand it.

Polymer paints and rubber type coatings have long been used as physical barriers to keep corrosion promoters such as water and oxygen away from steel substrates. This works until the paint is scratched, chipped or breached and corrosion promoters enter the gap between the substrate and coating. Then the coating can act like a greenhouse – trapping water, oxygen and other corrosion promoters – which allows the corrosion to spread.

“Often you can't see the corrosion until you flake off the paint if there is corrosion under the surface,” said Bobby Hobbs, a job foreman at DC Metal Construction, which specializes in steel construction and industrial plant building projects.

Although stainless steel resists corrosion well, and tank bottoms and other areas at high corrosion risk are sometimes constructed of it for that reason, it can cost up to six times as much as mild steel.

To control corrosion, the facility chose to have DC Metal Construction coat the inside of several equalization tanks with EonCoat, a spray applied inorganic coating. EonCoat represents a new category of tough CBPCs that can stop corrosion.

In contrast to traditional polymer coatings that sit on top of the substrate, the corrosion-resistant coating bonds

Proud supplier to Kenworth and Peterbilt

Advanced Manufacturing • Durable Graphics  
**Ampco**

Call Ampco At 604-472-3800

Oil & Gas  
**Premium Quality Manufacturer**

**We Custom Manufacture:**

- Metal Nameplates
- Thermal & Acoustic Insulation
- Graphic Overlays
- Gaskets & Seals
- Display Keypads

Contact Us  
**Ampco Manufacturers Inc.**  
Coquitlam, BC | 604-472-3800 | www.ampcomfg.com

Follow us on LinkedIn

# cost-effective coatings

stop corrosion,  
production downtime



▲ The use of chemically bonded phosphate ceramics can help many pipeline and storage facilities cut corrosion concerns.

through a chemical reaction with the substrate, and slight surface oxidation actually improves the reaction. An alloy layer is formed. This makes it impossible for corrosion promoters like oxygen and humidity to get behind the coating the way they can with ordinary paints. The corrosion barrier is covered by a ceramic shell that resists corrosion, fire, water, abrasion, chemicals and temperatures up to 400 degrees F.

Although traditional polymer coatings mechanically bond to substrates that have been extensively prepared, if gouged, moisture and oxygen will migrate under the coating's film from all sides of the gouge.

By contrast, the same damage to the ceramic coated substrate will not spread corrosion because the carbon steel's surface is turned into an alloy of stable oxides. Once the steel's surface is stable (the way noble metals like gold and silver are stable) it will no longer react with the environment and corrode.

## CHEMICAL BOND PUSHES OUT MOISTURE

EonCoat does not leave a gap between the steel and the coating because the bond is chemical rather than mechanical. Since there is no gap, even if moisture was to get through to the steel due to a gouge, there is nowhere for the moisture to travel. The only spot that can corrode is the scribe line itself, which eliminates the possibility of the corrosion migrating.

"Unlike traditional methods, the corrosion-resistant coatings for mild steel have a double layer of protection," said Hobbs. "The tough, outside ceramic coating will not chip like paint and takes sandblasting to remove. The chemically bonded layer stops corrosion and will not allow corrosion promoters to spread."

Since the coating withstood the harsh tank immersion environment so well, Hobbs expects it to protect against corrosion just as effectively at oil tank farms, natural gas pipelines, petrochemical plants, and other industrial facilities.

For those looking to reduce costs, there are additional advantages to CBPC

coatings beyond corrosion resistance. This includes quick return to service that minimizes facility downtime, as well as no VOCs or HAPs, and a flame spread rating of zero which improves safety.

For corrosion protection projects using typical polymer paints, such as polyurethanes or epoxies, the cure time may be days or weeks before the next coat of traditional "three part systems" can be applied, depending on the product. The cure time is necessary to allow each coat to achieve its full properties, even though it may feel dry to the touch.

In contrast, a corrosion-resistant coating for carbon steel utilizing

the ceramic coating in a single coat requires almost no curing time. Return to service can be achieved in as little as one hour. This kind of speed in getting a facility producing again can potentially save hundreds of thousands of dollars per day in reduced downtime, for instance, in oil and gas applications.

"After appropriate tank preparation, we found that if we spray EonCoat in the morning the tank can be returned to service the same day because it applies in one coat and dries quickly," said Hobbs. "Quick return to service like this can be particularly important in production-focused industries like oil and gas."

**EONCOAT**

**E-direct**  
High Quality – Low Price!



Always hit the best price.

**ORDER ONLINE**  
Easy access + simple selection

**Sensors, switches, components, displays and recorders**

#### Benefits

- Easy to select
- High quality
- Low prices
- Fast delivery

#### Information around the clock

- Access to the complete E-direct product offering
- Summary of product versions and prices
- Technical data at a glance
- Download technical datasheets



Shop now!  
[www.e-direct.endress.com](http://www.e-direct.endress.com)



**What is E-Direct?** E-direct complements the traditional range of products from Endress+Hauser. Certain instruments do not require a vast amount of consultation in terms of application and price – that's where E-direct can help. It's a product portfolio that offers simple product selection and fast delivery at an affordable price.

Endress+Hauser  
Canada Ltd  
1075 Sutton Drive  
Burlington, Ontario L7L 5Z8

Tel: 905 681 9292  
1 800 668 3199  
Fax: 905 681 9444  
info@ca.endress.com

**Endress + Hauser**   
People for Process Automation