VEOLIA

E.C.O.Film*

Non-Phosphorus[1] Cooling Water Technology

WATER TECHNOLOGIES

E.C.O.Film

Engineered Carboxylate Oxide Technology

Veolia's proprietary E.C.O.Film technology is the only technology available that provides mild steel corrosion protection and complete system treatment:

- Without the use of phosphorus
- Without EPA priority pollutants such as zinc
- Without the use of halogen-reactive, galvanic-corrosion-inducing tin additives

E.C.O.Film products make use of specialized C-H-O polymer technology to promote the formation of a protective film on mild steel surfaces in cooling water systems. These polymeric additives have only carbon (C), hydrogen (H), and oxygen (O) components and develop a protective film that is self-limiting and 80% thinner than phosphate-based programs. In some applications, a surface film formation catalyst (SFFC) is used to enhance film formation and corrosion protection in tough-to-treat waters.

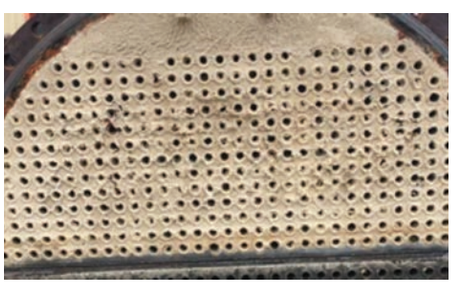
E.C.O.Film chemistry is simple to apply and manage. Typical cooling towers using 2, 3, or 4 products for scale and corrosion control now have the option of cost-effectively managing only 1-2 products to achieve the same performance. Fewer products mean less chemical handling, less risk of cross-contamination, less maintenance on chemical feed pumps and equipment, and reduced safety risk for your team. E.C.O.Film programs use advanced online desposition and corrosion monitors to validate actual performance, and not just chemical feed, ensuring your system is completely protected.

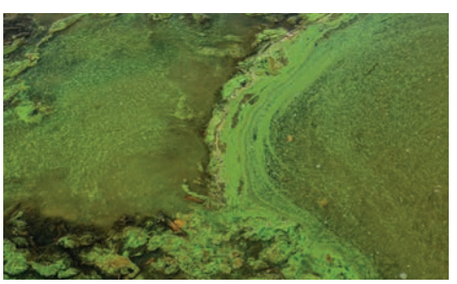
In addition, all E.C.O.Film products contain a fluorescent tracer that can be used to control the product feed rate in real time, reducing the number of complex tests required to manage a cooling water system and the time your team must spend managing the cooling water chemistry.

No Phosphate[1]. No Deposition. No Surprises.

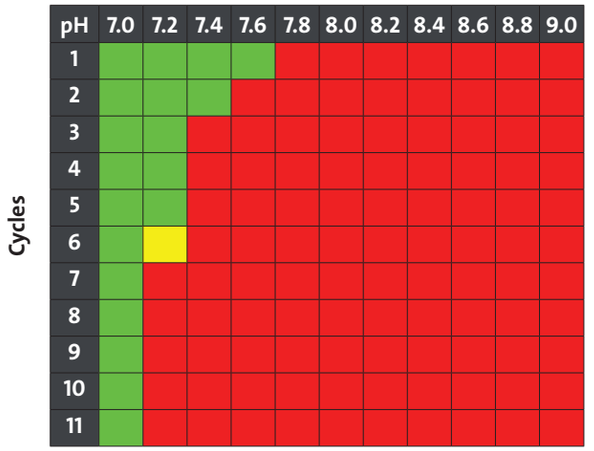
Deposition in critical cooling operations can limit production, algae growth can cause discharge violations and high biocide usage, and many customers now face increased phosphorus limits. Veolia's E.C.O.Film (engineered carboxylate oxide) technology for cooling water eliminates the use of phosphate for treating cooling water systems.

E.C.O.Film Solves Problems Like These:

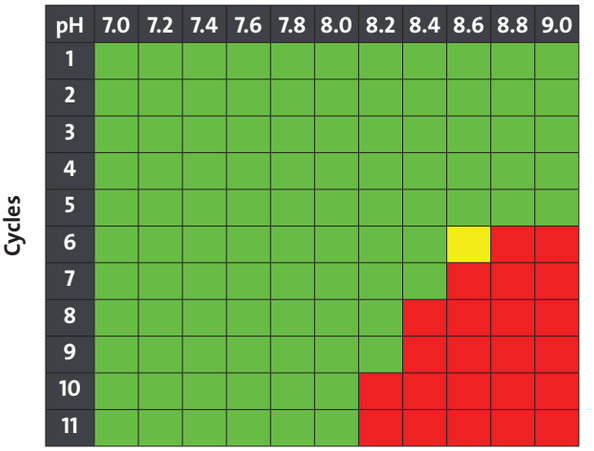




[1]May contain trace amounts



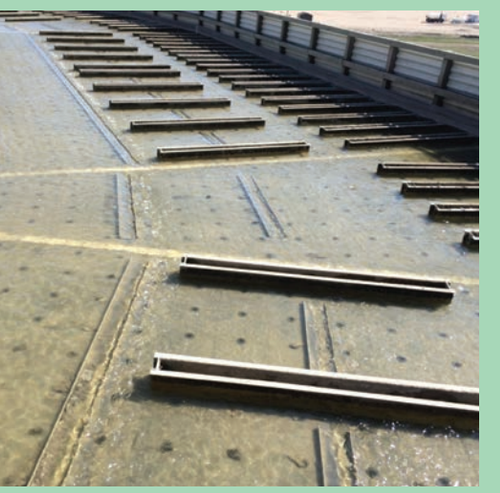
Calcium Phosphate potential in standard Alkaline program (5 ppm PO_4)



Calcium Phosphate potential in an E.C.O.Film program (0.02 ppm PO_4 in MU)

The red area represents the amount and speed at which calcium phosphate deposition would occur. E.C.O.Film effectively reduces the risk of deposition.

Compare a phosphate-based cooling water treatment program to a non-phosphate based program. Challenges with algae growth and control disappear.



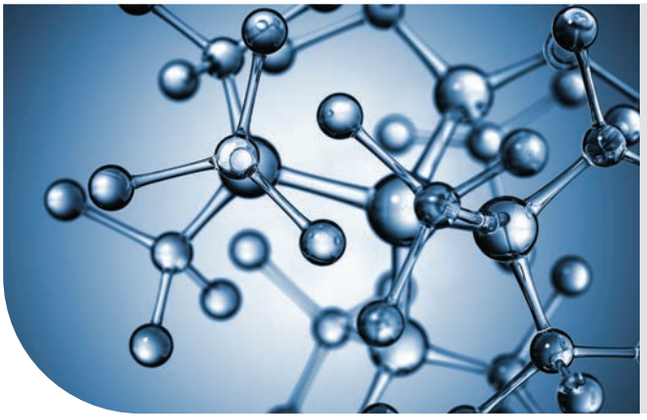
Benefits

- Eliminates the risk of costly calcium phosphate deposition
- Eliminates the risk of costly zinc phosphate deposition
- Eliminates the use of EPA Priority Pollutants
- Reduces the nutrient load in the water that can fuel biological and algae growth
- Allows you to meet stricter phosphate discharge limits without the need for a costly equipment solution
- Improves safety
- Reduces acid usage and handling
- Reduces program and chemical feed complexity
- Reduces chemical handling
- The only cooling water product available that helps customers address social challenges, and brand and community image with a new approach to chemistry and minimal impact on the environment around the customer

Cycles	pH 7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.6	8.8	9.0
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											

SatEQ* Advanced Modeling

SatEQ saturation modeling replaces ineffective calculated indices with a customized algorithm that compares more than 100 potential deposits simultaneously. With changing conditions able to be modeled in a matter of seconds, you can be assured that your product, dosage, and system performance are truly optimized.



E.C.O.Film Chemistry

The suite of E.C.O.Film products is designed to provide complete corrosion and deposit control for a wide range of water and operating conditions in cooling water systems. Leveraging engineered film technology, E.C.O.Film products eliminate phosphorus, eliminate the potential for zinc and phosphate deposition, and reduce algae growth and associated biocide consumption.

TrueSense* MonitAll*

TrueSense MonitAll mimics your system's exact heat transfer and water flow conditions, while measuring deposition online, and in real time. The quantitative analysis, based on proprietary Veolia algorithms, is sent to InSight*, our Asset Performance Management solution, allowing immediate response to any change in system conditions, before deposition ever has any detrimental effect on your system.

TrueSense Controllers

TrueSense continuously monitors multiple conditions in the cooling water system and can effectively interact with expanded sensors, valves, and customer systems to control blowdown and chemical feed, and respond to system upsets and water changes. E.C.O.Film products contain a fluorescent tracer allowing for easy, accurate, real-time feed rate control. As the critical link between onsite control and offsite data analysis, TrueSense allows Veolia experts and your team to effectively understand your cooling system in near real time.

Smart Pumps And Tank Sensors

Smart pumps give Veolia engineers and your personnel an easy way to understand exactly how much chemical is added to the cooling system and chemical pump performance. The data is confirmed by the tank level sensors to provide a robust system to understand product concentration in the system and validate product dosing versus the performance monitoring included with E.C.O.Film.

InSight Asset Performance Management

InSight combines advanced data and analytics to help water treatment professionals prevent unplanned downtime, increase asset reliability, extend asset life, and optimize operations. By aggregating and analyzing the thousands of complex data points from throughout an operation, InSight provides users with greater visibility and transparency at a plant level, or across the entire enterprise.

Resourcing the world

Veolia Water Technologies
Please contact us via:
www.veoliawatertechnologies.com