



STAHLIN NON-METALLIC ENCLOSURES

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How to effectively protect a SCADA control panel in a water/wastewater environment using Stahlin Non-Metallic Enclosures

THE SITUATION

Fishbeck, Thompson, Carr & Huber, Inc. (FTC&H) is a professional civil engineering, environmental consulting, architectural/engineering, and construction management firm. They specialize in the design of water and wastewater treatment plants for municipalities and industry.

One of their clients, a water filtration plant, located in Western Michigan was concerned about the early corrosion of metallic enclosures that housed critical SCADA PLC Control Panels. The corrosion level is unusually high in this environment due to the control units placed above an open top tank containing chlorinated water, which is a necessary, yet problematic location to place controls.

THE CHALLENGE

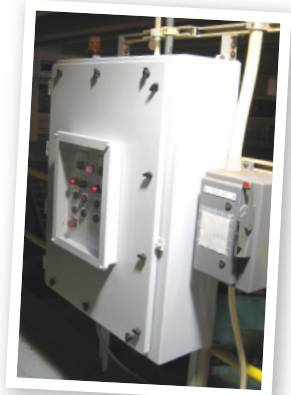
Although commonly found in disinfectants and bleach, chlorine is a well-known and vital chemical utilized in the process of water purification. Chlorine is also used in the form of hypochlorous acid, which kills bacteria and other microbes in drinking water supplies and public swimming pools.

However, along with the benefits of using chlorine, there are side effects. For instance, a team of researchers in Wisconsin sponsored by the Midwest Technical Assistance studied, chlorine's effect on corrosion of drinking water systems. Their research found introducing free disinfection increased corrosion. Specifically, chlorine creates an overall breakdown of the passive film that coats stainless steel thought to protect the metal from chemical attack. This results in the entire surface of the metal developing a uniform "sponge-like" appearance. The rate of attack can be affected by the fluid concentration, temperature, fluid velocity and stress on the metal components exposed to the chlorine. As a general rule, the rate of attack will double with a temperature increase of 18° Fahrenheit (10° C.) in either the product or the metal substrate.

In the case of this water filtration plant, FTC&H was fighting a tough battle against corrosion and needed to switch to a different material which would not be affected by the high exposure to chlorine in the facility. Consequently, they began to explore non-metallic alternatives.

THE ANSWER TO THE CHALLENGE

FTC&H needed to find an enclosure that could house a PLC with local I/O rack/chassis, UPS, and relays inside the enclosure. They also needed space on the front panel to secure analog indicators, pushbuttons, pilot lights and selector switches. In addition, the client required a "double seal" to protect the contents of the enclosure from the affects of the corrosive environment. This certainly was not a simple order to fulfill, until a suggestion from one of FTC&H's suppliers, FCI Automation, led them to Stahlin Non-Metallic Enclosures.



THOUGHTS FROM FTC&H ON THE SUCCESS OF STAHLIN:

"Our solution was clear. We were impressed by Stahlin's N-Series Wall-Mounted, Non-Metallic Composite Enclosure because its polyurethane seamless gasket provided us with a water and dust-tight environmental seal. And of added benefit, non-metallic enclosures are easier to modify than metallics! In fact, through Stahlin's ModRight® program, customers have the option of adding factory-accurate modifications to the enclosures, including placement of windows, holes, and vents that are ready to use, directly upon receipt of shipment. In addition, Stahlin's Applications Engineers are available to provide quick, detailed and professional technical services.

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We knew we had made the correct choice when our customers at the Water Filtration Plant made it a point to comment about the quality of their Stahlin product, despite their repeated use of metallic enclosures in their facility.

For more than a year and a half we have also been using Non-Metallic Composite Enclosures in other facilities and agree that Stahlin's products are an ideal replacement for metallic enclosures, specifically within a demanding, corrosive environment where the protection of critical controls is essential to system performance."

Troy McDonald
Senior Electrical Engineer
FTC&H



**FOR ADDITIONAL INFORMATION ABOUT
FISHBECK, THOMPSON, CARR AND HUBER, INC.:**
www.ftch.com

**FOR INFORMATION ON STAHLIN'S PRODUCTS
AND SERVICES VISIT:**
www.stahlin.com



REFERENCES:

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