

## FEATURED PROJECT

# Composite Repair of Fiberglass Chemical Storage Tank

**CUSTOMER**  
Aquapharma

**APPLICATION TEAM**  
PCI

**SYSTEM**

CF-500 BD, FRP 211 HT Saturant, FRP Repair Putty, HP 300 Epoxy, FRP 120 HT Adhesive

**LOCATION**  
Texas

**DATE OF APPLICATION**  
June 2021

**SUBSTRATE**

Fiberglass

PROBLEM

A chemical distribution facility found that several of their older fiberglass chemical storage tanks were experiencing degradation from chemical and UV exposure including cracking and delamination of the fiberglass. The most critical areas identified for repair were the junctions of the roof and side walls as well as the lifting lugs that were built into the tanks. In addition, the vent piping on the top of one of the tanks needed to be replaced. The facility required a solution that could provide long-term reinforcement of the tanks, was chemically-resistant, and could be installed with the tanks online.



Figure 1 Close-Up View of Tank Roof Prior to Repair

The facility chose our high-strength, chemical-resistant carbon fiber composite system. The high modulus, excellent adhesion and fatigue-resistance of the carbon fiber allows the externally applied composite to provide structural reinforcement and prevent further degradation.

**INSTALLATION STEPS:**

1. 60-grit sandpaper was used to aggressively sand the fiberglass.
2. FRP Repair Putty was applied to fill in any cracks and/or holes and smoothly transition any hard edges.
3. FRP 120 HT Adhesive was applied via brush/roller at 5 - 10 mils.
4. The CF-500 BD was saturated with FRP 211 HT Saturant and applied over the repair areas in multiple layers.
5. HP 300 Epoxy was then used to topcoat the repair area and allowed to cure for 24 hours.



Figure 2 Cracking and Delamination of the Fiberglass at the Tank Base

The composite reinforcement was successfully installed without the need for expensive scaffolding; only manlifts were used where needed, and, without additional containment or environmental controls, even though the tanks were online and contained aggressive chemicals.

SOLUTION

- The chemically-resistant composite system provides an estimated 20-year service-life extension.
- The entire project was done without the need to drain the tanks.
- The epoxy-based resin system allows for a wide-range of application temperatures and humidity levels, eliminating the need for costly environmental controls.
- The composite was installed via wet lay-up, ensuring a perfect fit for all repair orientations.



Figure 3 Carbon Fiber Repairs of the Vent Pipe, Tank Roof and Top Seam

BENEFITS