Proven Solutions for Aggressive Environments

Chemical-Resistant Coating Systems

Tested Against the Most Aggressive Services

Advanced FRP Systems tests all of our chemical resistant coatings to understand how they perform with aggressive solvents, concentrated acids, strong oxidizers, and caustic exposures. Understanding the chemistry behind our coatings ensures their performance in the harshest conditions.

Custom Solutions, Optimized Performance

If your process includes chemical exposure at high temperatures or high abrasion, combinations of chemicals or uncommon reagents, our chemists can work directly with your team to design optimized, long-term solutions around your exposure conditions.

Stainless Steel Is Not The Only Option

Properly coated carbon steel can often outperform stainless steel, at a fraction of the cost. Stainless steel is the industry standard, but is still susceptible to degradation from elevated chloride levels and low pH. We can help you protect your assets or reduce the cost of replacement.

Outstanding Resistance to Chlorinated Solvents

Chlorinated solvents offer a unique challenge for protective coating systems. Advanced FRP has designed coating and composite systems for long-term immersion in even the most aggressive chlorinated compounds like methylene chloride and EDC for temperatures up to 250°.

Learn more at **advancedfrpsystems.com**

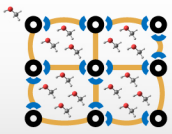
Mechanisms of Chemical Attack on Coatings

Typical Chemical-Resistant Coatings

Typical coatings are bonded together using plasticizers like Benzyl Alcohol.

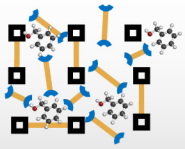
Solvent Attack

Exposure to a solvent like Methanol displaces plasticizers and swells polymer.



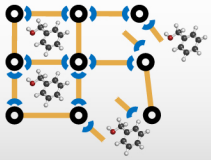
Oxidizer Attack

Oxidizers break the bonds between monomers, "unzipping" the coating.



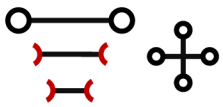
Chemical Attack

Acids, caustics, and other chemicals cleave the resin bonds, breaking down the coating.

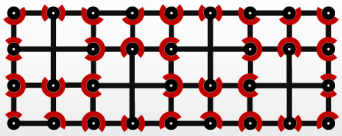


Advanced FRP Systems Chemical-Resistant Coatings

Coatings designed with tighter cross-linking to effectively eliminate need for plasticizers.



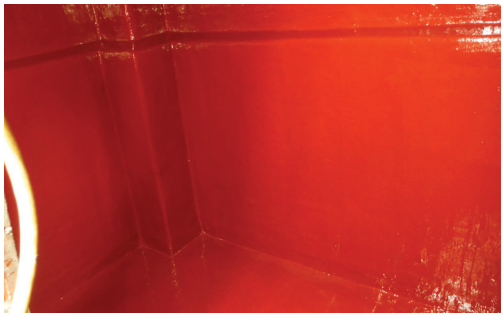
Solvents, Caustics, Oxidizers and Chemical Attacks are not able to displace plasticizers, swell polymer or cause damage to chemical bonds.



Various Mechanisms of Chemical Attack

Aggressive materials can attack polymeric coatings in several ways. Advanced FRP Systems provides custom solutions optimized for even the most extreme services, including Power Generation, Chemical Manufacturing, Oil & Gas, and Food Production, ensuring long-term corrosion prevention of your assets.

Solution Spotlight



Acid Basin

A 95% sulfuric acid overflow tank was found to have several through-wall failures above the acid brick lining. Advanced FRP designed a carbon fiber reinforced, 100% solids, epoxy novolac coating system that repaired the through-wall failures, transitioned from the acid brick to the concrete, and will provide long-term resistance to the sulfuric acid.

MIBK Immersion

Methyl Isobutyl ketone (MIBK) is a very aggressive, small-molecule solvent that attacks most polymeric coatings. Advanced FRP designed a highly cross-linked novolac epoxy that was free of plasticizers that can resist MIBK immersion conditions and does not leach any organic or inorganic impurities into the solution.

Alkylphenol

A catastrophic failure of a previously installed coating caused a chemical processing facility to lose an entire batch of valuable alkylphenol products. Advanced FRP designed a coating system that was easy-to-install, cures at ambient temperature, and provided excellent chemical resistance to alkylphenols and other hydrocarbons.