



About Resins

ABOUT POLYESTER RESINS

The majority of all fiberglass parts are constructed using polyester resins. Polyester resins are easy to use, fast curing, tolerant of temperature and catalyst extremes, and less expensive than epoxy systems.

Thin applications of polyester resin can remain tacky when exposed to the air. We recommend the use of a waxed resin like #83 for these thin layers. The wax rises to the surface and provides a barrier to the air which allows the resin to fully cure. Note, the wax must be sanded and washed off before application of the next coat of resin or paint. If a laminate or mold is constructed using two or more layers of fiberglass reinforcement, no wax is necessary as the heat generated during the cure cycle will fully set the resin.

Tech Tip: Spray PVA mold release over any polyester lamination of repair so the resin will cure tack-free. Wait 25 minutes after finishing the lay-up, then spray on two light coats. Within a few hours the PVA can be washed off with water, leaving a fully cured resin or gel coat surface!

ABOUT VINYL ESTER RESINS

Vinyl ester resins are typically used when high durability, thermal stability, and extremely high corrosion resistance are needed. These applications often include building and repairing chemical storage tanks. Recently, the marine industry has begun to exploit these properties by using vinyl esters to produce and repair FRP boat hulls. These hulls become nearly impervious to blistering and osmotic problems. Vinyl ester resins are now commonly used in all areas of modern high performance composites. Vinyl ester is proving to be a terrific alternative to conventional resins in racing, marine and aerospace applications.

Vinyl ester resin is often described as a cross between polyester and epoxy. This is oversimplified, but it does help convey its qualities. Vinyl ester falls between polyester and epoxy on price, most physical properties and handling qualities. However, vinyl ester does exceed both polyester and epoxy in corrosion resistance, temperature resistance, and elongation (toughness.) We offer a pre-promoted version which needs to be mixed with 1.25% MEKP to begin the cure reaction. This material has a limited shelf-life of 3 months, so order as needed for your projects. It is compatible with all our fabrics, pigments, and fillers. It is also suitable for construction of most fuel tanks. However, we recommend the customer test for compatibility before the tank is put into service.

For complete corrosion resistant boat hull repair techniques, see our #1087 Composite Repair brochure. Otherwise, experiment by substituting vinyl ester for polyester in your next high performance application.

ABOUT SYSTEM 2000 EPOXY RESINS

System 2000 Epoxy Resin is a low viscosity, light amber laminating resin that is designed for fabricating composite parts and other demanding structural applications. Use this system to maximize the physical properties of carbon fiber, Kevlar®, and glass laminates! Test results have proven its superiority over to other room temperature epoxies. Its low viscosity and great handling characteristics make it a favorite in the shop, too!

Three high performance hardener systems are available for curing the System 2000 resin. 20 minute, 60 minute, and 120 minute pot life versions are all options. This added variety allows the fabricator to select the system best suited to the size, complexity, or time-frame of the project. Simple parts which need to be demolded quickly should use the 20 minute hardener. Larger and more complex parts can use either of the other hardeners, while vacuum bag applications would typically warrant the longest 2 hour working time.

As with any epoxy system, adhere to the proper mix ratios and maintain an adequate curing temperature of at least 70° F. The cure time will be cut in half for every 10° F that the temperature is raised above 70° F.

Purchase a single cure, or buy resin in bulk and order a variety of hardeners to keep on hand for any project!