From the Canard Aviators List:

Gary, I have found some epoxies that are better suited for use in making fuel tanks than others? I believe I read about some epoxy flaking off in fuel and causing a Cozy to crash.

All the suppliers claim their "structural resins" are suitable for fuel containment. And, they are - IF - the builder knows how to go about it and does everything correctly. I have always been adamant about "post curing" epoxies, especially the fuel tank. You can't buy cheaper insurance. Safe-T-Poxy or now EZ-Poxy 87 is probably by far the best in this category, with or without a post cure.
Chemical resistance is one of the prime attributes of epoxies beyond home-building airplanes. They are used for building fiberglass chemical storage tanks and piping and for lining of steel tanks to prevent corrosion. In that industry the curing agent "type" governs the degree of chemical resistance.
Aromatic amines are by far the best known curing agent type for overall chemical resistance - particularly in fuels, solvents and strong acids. EZ-Pox 87 is the only aromatic amine curing agent available to the homebuilt world.
Next in line are "aliphatic amines". The original RAES & RAEF were "modified" aliphatic amines. However, according to my tests the RAES without a post cure was absolutely no good for fuel and marginal with. But,the RAEF without a post cure was marginal and did just fine with a post cure. Thus, the original Vari-Eze plans mandated RAEF for the fuel tanks.

Next in line are "cycloaliphatic" amines. Aeropoxy, MGS, Proset, and EZ-Pox 83 & 84 are "blends of modified aliphatic and cycloaliphatic amine adducts". Modified - because the straight stuff has bad cure behavior. Some modifications work out better than others. A prime example is the Aeropoxy's sensitivity to temperature and moisture. I call these quirky cure characteristics". However, even the quirkiest" of these curing agents will resist fuel - IF they are properly applied and fully post cured.
DO NOT simply brush the resin on the inside surface of the already cured fuel tank and expect it to cure like a 2 or 4 ply lay-up. This is were the green plugging flakes of epoxy come from.

Your original layups for all the inside tank components should be "wet" so to be certain there are no dry spots, pinholes or voids. This is no place to be too concerned about weight. Even the BID tapes in the corners should be nice and wet. Peel ply only were secondary bonds will be needed. For those of you than like the smooth surface of peel plying - add an extra final ply of a fine weave light weight fiberglass deck cloth. It will give you a similar smooth surface without introducing or hiding voids. Warm shop temperatures and low humidity will reduce the curing agents "quirk" factor.
There are many ways to obtain a post cure on the tank. Before the tops are put on, you can use heat lamps to cure the inside surfaces. You can pre-post cure the inside surface of the top too. After the top is bonded in place you can post cure these bonds by heating the exterior surface with heat lamps. The heat will work its way to the bonds. OR, after the top of the tank is bonded on, you can circulate warm air through the tank for several hours. I did this with the outlet end of my vacuum cleaner inserted in to the fuel cap opening. About 140F is sufficient.
RULE OF THUMB - If you can hold your hand on the surface to the count of 10- the temperature is 140F or below.
Hope this is helps.

Gary Hunter
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Vari-Eze N235GH

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Val Tames Torrance

I knew my lesson Sunday had the potential to be interesting when it turned out to be windy instead of rainy. Not just windy, cross windy. Rainy I assume would merely have canceled it. We went over the ATIS so next time I will have listened to it and be ready with the code word to tell the tower. Phil gave me a list of the phonetic alphabet for pilots which is of course entirely different than the one the Sheriff uses (alpha instead of Adam, etc.), then we talked about crosswinds. He was wishing he had brought a