

2006 • A Decade with Dr. Gel • 2016



Ask

Dr. Gel



Dave Weakley is the owner of American Boat Restoration and has been helping Northeastern boaters keep their boats in fine trim and good repair for over 40 years.

by Dave Weakley

"Email me or call me with your questions! I'll be happy to help you out"

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Gelcoat and laminate torn loose.

Hull Delaminating ...It'll Ruin Your Day

Two boats manufactured by the same company were brought to my shop for repair within weeks of each other because sections of the hull were delaminating.

Initially I wondered what could have caused the delimitation which is not only cosmetic; it's structural as well. As you can see in the photos there is a large area of the bottom laminate that has peeled away. There were no signs of impact anywhere in the fiberglass.

I began the repairs by grinding out the delaminated fiberglass and gelcoat and discovered dry laminate in the fiberglass layers. I continued to grind out the area until I reached good solid laminate. This is indicated in the darker areas, usually purplish in color. I rebuilt the area using epoxies and fiberglass mat. Next vinyl ester resins and fiberglass cloth were applied followed by vinyl ester fiberglass fillers. These materials were chosen because epoxy adheres to polyester resins better than polyester resins adhere to themselves. Gelcoat can be sprayed on vinyl ester fillers but cannot be applied over epoxy. Each layup required grinding and sanding to re-establish the original multiple body lines. The area was masked off and prepped for gelcoat. New gelcoat was applied, allowed to cure, then sanded and compounded to complete the repair.

One thought I had during the repair operation was... what is the condition of the laminate on the rest of this boat... What are we not seeing?

What can cause dry layup? Quality control is of utmost importance! The environment must be right! Not too hot, too cold or too humid.



Note darker area along left side of damage is wet out with resin better than lighter area. Very dark area indicates holes in the laminate





Restoration complete.



Resin must be stored and handled properly. The age of resin and catalyst is critical and must be monitored. Resin needs to be properly mixed and correct amounts of catalyst used for a good bonding laminate. Mekp (methyl ethyl ketone peroxide) is the catalyst used. Polyester and vinyl ester resins used in manufacturing contain the chemical styrene. Gov't regulations have been limiting the amount of styrene emissions. New low-styrene resins are now being used but they set up too quickly and there is not good chemical bond between layers in the laminate. During production it's important the operator of the fiberglass chop and resin spray gun apply each layer "wet to wet". If one layer is too dry the adhesion of the next layer will not be strong.

Interestingly it is known the company of the boats I repaired has manufacturing plants out of the country. Were these boats victims of poor quality control? How many more boats on the water have this problem?

Not trying to scare anyone just sharing what's happening in the world of boat manufacturing. The boats brought to my repair facility cannot be the only two boats with delaminating problems.

Do your homework when making a boat purchase. Find out as much as you can about the manufacturer and its building process. Get a good manufacturer warranty. What does the warranty cover and for how long? You may need it! Unfortunately, a buyer has no way of knowing how sound the laminate is on a boat.

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