

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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The owner of a bass boat was taking good care of his boat. He never considered applying epoxy barrier on the hull because he took it out of the water and kept it on the trailer after he used it.

He brought his boat to my shop to have chips in the gelcoat & fiberglass on the bottom of the transom near the drain plug repaired. I had to remove the boat from trailer and block it in order to do the repairs.

When I removed the trailer I discovered osmotic blistering on the hull in the pattern of every carpeted bunk on the trailer.

Hidden Osmotic Blisters



1

I want to talk about carpeted bunks and blisters.

The nice plush carpeting on the bunks act like sponges that never dry out. In addition sand and small stones can accumulate in the carpet pile and resemble 80 grit sand paper being slid back and forth on the hull as the boat slides back and forth.

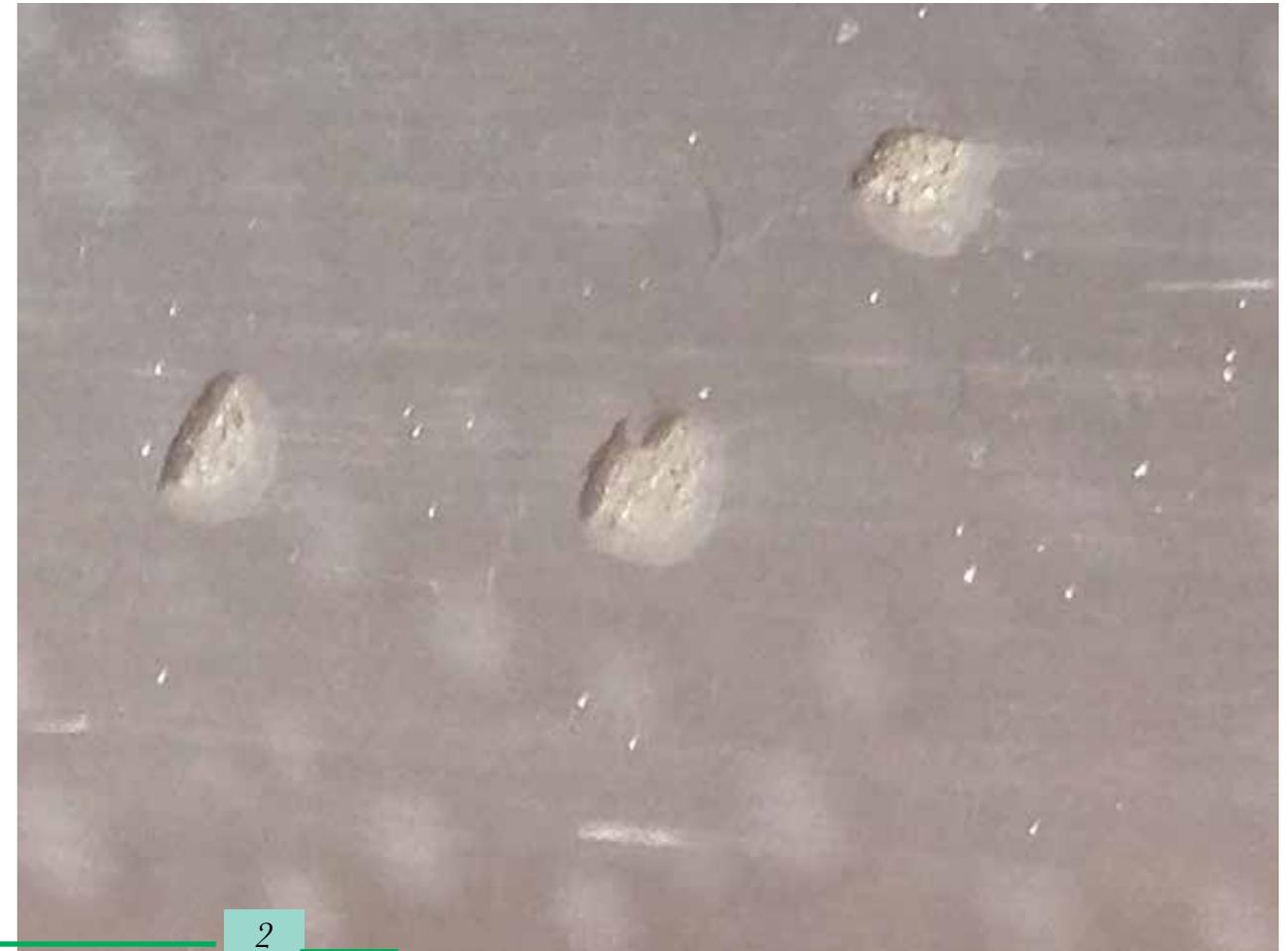
Even though the boat was never left in the water as I recommend it developed blisters because of the consistent moisture.

to see them on the top side of a boat. That has been my experience.

There are many opinions on how blisters develop. Here are my thoughts in a very condensed version of a detailed and lengthy theory based on my many years of repair experience, research and many articles I have read.

Osmotic blisters are a problem all across the fiberglass boat building industry. It affects boats of all different price ranges from the least expensive

Fiberglass boats are made using resins that contain some chemical materials that are water soluble. The water soluble materials should not cause a problem if the resin cures properly but sometimes it does not. Possible reasons of improper cure are; 1) Chemicals may not have been mixed well. 2) Chemicals in the mix maybe outdated. 3) Peroxide in the mekp (activator for the resin) maybe old 4) Improper temperature during the curing process. An improper cure will result in thick,



2

Some of the blisters are broke open and water is now seeping into the laminate causing the beginning of rapid deterioration. They need to be repaired properly and asap.

Osmotic Blisters a.k.a. Blisters, Boat Pox, Bumps
"Boat pox" technically called osmotic blisters are found mainly below the water line. It is uncommon

to million \$ yachts. The size of the blisters can be as small as a pea or as large as an orange.

Osmotic blister problems have considerably increased in the past ten years. Why? I can only take a w.a.g. Are chemical suppliers producing inferior products? Are boat manufacturers using cheaper materials to make more profit? Rushing production? There is a lot of finger pointing going on in the industry and repair shops.

pastly water soluble materials that can migrate to the surface of the laminate but are too thick to seep out through the gelcoat. The occurrence and speed of this happening depends on environmental conditions the boat is kept in; temperature, moisture, humidity, etc

The next contributor to the development of blisters is a drop of water. Outside water seeps through the



porosity of gelcoat. This is a normal occurrence that gelcoat is subject to. The seepage in itself will not cause blisters. But when this migrating water seeps into an area of concentrated water soluble materials and mixes together acids are formed. This acidic pasty mixture is too thick to go back out through the precocity in the gelcoat. The gaseous acid expands, pressure grows and thus the blister is created on the surface. All blisters are formed this way.

Boat owners should keep water from penetrating gelcoat as best as they can.

Some tips that may help prevent blisters are:

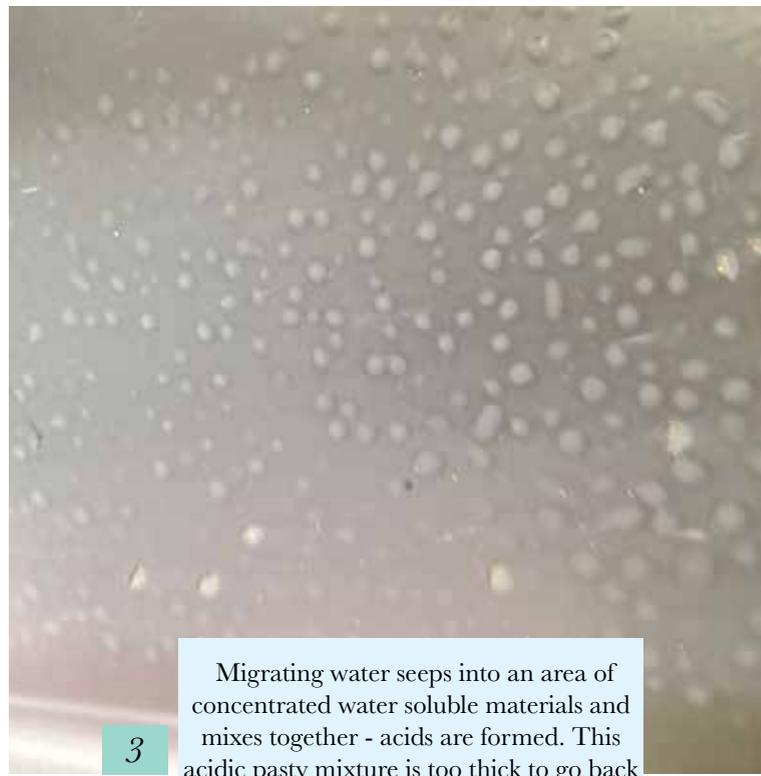
- 1- Keep your boat sealer glazed and waxed using good marine grade products.
- 2- Apply a barrier coat to the hull if you keep your boat in the water for a long period of time.
- 3- Keep all canvas in good condition; it's essential for it to repel water. Marine supply stores sell canvas waterproofing and fabric treatment products. Replace it if it's old and tired.
- 4- There are plastic bunk glide on's for trailers that work well. These go over the wood bunks
- 5- If you do want carpet install marine grade short nap carpet
- 6- When making a purchase of a new boat read the hull Warranty carefully. Some manufacturers are now recommending NOT leaving your boat in the water.

Gelcoat quality has changed- We have the following disclaimer for our repairs;

The EPA has determined control technique guidelines for the production of gelcoats -Federal Government -Unfunded Mandates Reform Act - products listed under CAA Section 183(e)

May 2006 -The mandates have required manufactures to produce gelcoat within the guidelines and Low VOC (VOC- Volatile Organic Compounds) gelcoats are being made. They are different from the regular gelcoats which were used since the beginning of boat building. Properties in Low VOC gelcoat may initiate the development of osmotic blisters when repairs are done under the waterline. We cannot guarantee the development of osmotic blistering developing and neither will the boat manufacturers. Blistering can occur; this is beyond our control. We recommend a Epoxy Barrier applied to the hull below the waterline to help prevent osmotic blistering.

The Repair for blisters is very tedious and expensive. Each and every one of the blisters need to be ground out and filled with vinyl ester fillers if you want to apply new gelcoat or filled with epoxy resin fillers with epoxy barrier coating.



3

Migrating water seeps into an area of concentrated water soluble materials and mixes together - acids are formed. This acidic pasty mixture is too thick to go back out through the precocity in the gelcoat.



4

The gaseous acid expands, pressure grows and thus the blister is created on the surface. All blisters are formed this way.

At the end of the day if all the blisters are ground out, sanded and filled there is no guarantee that other ones will not surface somewhere else.

There is no magic fix for blistering unfortunately. It has to be repaired properly and sooner is better!

Being as it may it is better to repair than not repair!

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