

Fiberglass Repair Primer

So your boat needs a little repair – you can do it! This document is a primer on marine epoxy and fiberglass repair. This is by no means a complete marine epoxy manual, but there is enough information and detail so that you can repair your Mutineer.

What is marine epoxy? This document discusses the use of West System which is a two part marine epoxy. Epoxy consists of resin and a hardener. You mix the two parts together to create a chemical reaction that forms the epoxy. The chemical reaction creates heat. It is better to mix small batches as the heat created in large batches accelerates the curing process – perhaps too fast.

Supplies

The following is a list of supplies you need to for your repair project:



West System 105 Epoxy Resin



West System 205 Hardener



West System 300 Mini Pumps



West System 406 Colloidal Silica Filler



Mixing cups



Paint Stirrers (free from lowes or any paint store)

Acetone (Lowes or Tractor Supply)

Cleaning rags.

Sandpaper (100, 220, 400, 600) and sanding block

You can purchase West System at your local West Marine. Mail order is expensive as special handling is required for the resin and hardener.

Ready to Mix – Not Quite

Pot Life – The first thing to understand is Pot Life. Pot Life is defined as the period of time a reacting composition remains suitable for its intended use. In other words, once you mix the resin and hardener together, you have a very limited amount of time to apply. In the case of our 205 Hardener, the Pot Life at room temperature (70 degrees) is 9-12 minutes. The warmer the temperature, the shorter the Pot Life. At 90 degrees you have less than 8 minutes. And the larger the batch, the shorter the Pot Life will be.

Mini Pumps – these make measuring the correct ratio of resin to hardener a breeze. For each pump (stroke) of resin add a pump (stroke) of hardener. Rarely have I used over 3 pumps. Many jobs can be completed with just one or two pumps. And it is possible to use half pumps. The use of Mini Pumps is highly recommended.

Thickening – depending on the job, you may want to thicken the epoxy mixture with 406 Colloidal Silica Filler. This filler helps in “building up” repair areas. You would not use thickening with fiberglass cloth. How much thickener to add and how thick should the mixture be? Depends on the job. Mustard, mayonnaise and peanut butter – these are the consistencies that you can use:

Mustard – You removed your round bailers and want to fill in the holes. Tape the holes shut from the hull side with masking tape. Pump 2 strokes of resin and hardener into a mixing cup. Add just enough filler to achieve the consistency of catsup. Pour the thickened epoxy into the hole.

Mayonnaise – you have a job that calls for a spreadable epoxy. For example, gluing new wood strips to the inside of your centerboard trunk. . Pump 1 stroke of resin and hardener into a mixing cup. Add enough filler to achieve the consistency of mayonnaise. Spread the thickened epoxy across the prepared strips and place them in position.

Peanut butter – the final job requires the epoxy to stay put. For example filling a large ding in your centerboard. . Pump 1 stroke of resin and hardener into a mixing cup. Add enough filler to form the consistency of peanut butter. Spread the epoxy mixture in place.

Have a Go – Repair scenario

Now that you have the idea, you are ready for a real repair job. Let's say that you have a chunk missing from the leading edge of your rudder.

First prepare the repair area by removing any loose material.

Next clean the repair area with acetone.

Now mix a batch of epoxy. Place one stroke each of resin and hardener in a plastic mixing cup. Use a paint stirrer (I often break them in half both ways to form a handier tool) to mix in enough filler to achieve the consistency of peanut butter.

Carefully spread and form the epoxy into the repair shape desired. Try not to use any excess or allow any epoxy to cure outside of the repair area. It is very difficult to remove.

Allow the repair to cure for 6-8 hours.

Finally sand the repair area into the final shape. Start with 100 grit and move on to 220 grit. Final sanding should be wet sanding with 400 then 600 grit paper.

You may choose to paint the repair area or leave it as it is.

You may have noticed small holes in the cured epoxy. You can fill these with 3M Marine Filler.



3M Marine Premium Filler is a water resistant Vinylester filler designed for fiberglass repair work above or below the waterline. It is ideal for repairing decks, hulls, and other fiberglass components. It can also be used to treat gelcoat blister damage. Premium Filler features a unique and easy to sand formula.

Mix a small batch (two part, follow directions on can) and apply to the repair area. It is ready for sanding in about 1 hour.