



## **INSTRUCTIONS FOR SECTIONAL POINT REPAIR**

### USING PRIMELINER SILICATE RESIN AND FIBERGLASS KITS

NOTE: These instructions assume that procedures such as defect measurement, line cleaning, pre-CCTV inspection, etc. have been completed.

#### **Materials List:**

PrimeLiner Silicate Resin Component A and B; Mixed 2:1 (B:A, by volume)

Trevara® coated fiberglass mat; pre-cut to size of repair (double length for 2 ply repair)

Bondbreaker materials - Polyethylene tubing to protect carrier packer from resin

Mixing bucket

\*Variable speed drill with typical paint mixing tool (mixing stick provided )

Plastic trowels

Protective gloves

\*Protective eyewear (not provided, available upon request)

\*Acetone (small amount for cleanup and/or removal of liquid resin from skin)

\*Duct tape and masking tape (painters tape)

Fastening devices such as zip ties, breakaway wire ties, etc.

\*Cleanup materials

\*Not Included in the Kit



### Easy to Follow Steps:

1. Choose the site for wet out. Mixing and impregnation should be accomplished in the shade, and materials - especially resin - should be protected from direct sunlight at all times to avoid overheating. Also, try to avoid impregnation operations on asphalt or other dark surfaces which may retain excessive heat. A sheet of plywood on some sawhorses or a folding table provides an ergonomic work area and keeps it off the hot ground.
2. Determine the amount of pressure required in the packer for the repair. This is accomplished by placing the packer inside a pipe of the same diameter as is being repaired. Make certain the packer is fully inserted into the pipe. Then inflate the packer just enough for the rubber to make contact with the pipe and note that pressure reading on the pressure gauge. Add 2-3 pounds to that pressure. For instance, if the rubber makes full contact with the host pipe at 8 psi, then add 3 pounds for a total of 11 lbs psi pressure for the actual repair. **REMEMBER THAT YOU WILL BE WORKING IN A DAMAGED PIPE AND IT IS VERY IMPORTANT THAT THE PACKER NOT BE PRESSURIZED TO THE POINT THAT IT WILL FURTHER DAMAGE THE PIPE.**
3. Prepare the packer. For protection of the carrier and to act as a bond breaker, the carrier should be wrapped with a polyethylene tube (provided) or flat material or a heavy duty shrink wrap. Fold over and tape down excess tubing with painters tape. If polyester cord reinforced polyethylene tube is used, cut a length of the tube to completely cover the packer from end to end. Duct tape one end of the tube so that it is securely attached to the end of the packer that will be inserted first into the line from the manhole. This is necessary so that when the packer is deflated and removed from the repair, the tube will invert and easily pull away from the repair surface and then come out of the line trailing the packer.
4. Place a protective layer of PE sheeting on the surface (typically a table top) for impregnation, making sure it is larger than the fiberglass matting so that resin will not spill or run onto the ground or onto the environment. Secure with tape to avoid movement while working with the wet out fabric.
5. Impregnation: Place the fiberglass matting on the PE sheeting with the Trevara (felt) side facing up. Combine the two parts of the resin and mix thoroughly, about 45 seconds. Do not mix more than 60 seconds or use excessive speed if using a drill (you do not want to whip the resin). Spread approximately 2/3's of the resin on the Trevara surface and work it in with the trowel or plastic spatula, paying special attention to thoroughly saturate all surfaces, including edges. Turn the matting over. Take a moment or two to use the trowel/spatula to work the resin up through the matting, and then spread the remaining resin over that surface. Again, thoroughly work the resin into all surfaces, including edges.



6. After impregnation, fold the matting as follows. Fold the two ends of the matting into the middle, overlapping an inch or so in the middle.
7. Carefully turn the resin/matting composite over and lay the packer over the middle of the length of the composite (wet out fabric). Wrap the composite over the packer as tightly as possible and then secure the composite with zip ties or some medium such as plastic tape (which will stretch and break under pressure from the packer), tube netting, rubber bands or breakaway wire ties or zip ties.
8. Place the packer into the line: Winch the packer into the line to a point just outside the manhole and STOP. Note that care should be taken while placing the packer with the composite into the manhole and line so that the composite does not slide or slip forward or backward on the packer. After the packer and composite are fully in the line, put just enough air pressure into the packer to make it firm, but not to expand it. By so doing, the packer will "snug" against the composite, helping to hold it in place as it travels through the line to the site of the repair.
9. Winch the packer into the line to the point of the repair and inflate it to the required pressure (see item number 2 above). At that point, the composite should be firmly pressed against the inside of the host pipe. Monitor the packer to make certain that the packer maintains the required pressure for the entire curing time.
10. Determine curing time. The cure time of the resin is typically about 120 to 150 minutes after mixing. This time, however, can vary somewhat due to factors such as ambient temperature when mixed and impregnated, resin storage temperature and other factors which typically affect virtually any resin. To determine when cure has been completed, take a small amount of the mixed resin and place it between two pieces of polyethylene sheeting and press it so that the resin is only about one-eighth of an inch thick. Place this in a small container and place that container into the manhole so that the resin sample is at about the same temperature as the repair composite. Periodically withdraw the sample and try to slightly pull the PE off the resin sample. When you can separate the PE from the resin sample without leaving any residue on the PE, then you can be reasonably certain that the repair has cured.
11. Deflate and remove the packer. After curing has finished, deflate the packer and remove it from the line. Remember that when the packer is first being removed from the repair site in the pipe, it is inverting the PE protective tube or sheeting from inside the repair so be careful not to remove it too quickly at that point so that the PE won't tear and remain in the line. Also note that when the packer is removed from the line, the PE tube or sheeting should be trailing the packer.
12. At this point the repair should be completed, ready/for CCTV inspection.

**Additional Information:**

Read and follow all MSDS. The individual components (A and B) can be removed from skin with soap and water. Note that if the mixed resin is allowed to harden on skin, it will be worn until natural oils and "wear and tear" remove it. Cleanup any tools as desired using a small amount of acetone. Typically, the resin will easily pop off plastic buckets, spatulas, etc., after it has hardened so those generally don't need to be cleaned. Also, by spinning the mixer at high speed just over the surface of the resin, but still contained in the mixing bucket, most of the resin can be removed from the mixer. Typically, since plastic is used so much for mixing and impregnation, there is very little (if any) cleanup required with acetone.

Our Primeliner silicate resin is available for various setting times and weather conditions. If you experience working and setting times that are too short (perhaps in very hot weather) or too long (very cold weather), let us know at PrimeLine Products and we will help you obtain the working/setting times you require. There is a separate paper available which details resin storage, handling, mixing and how to increase or decrease working and setting times.

**Never inflate a carrier packer outside a pipe.**

**Never exceed maximum pressure recommended by the packer manufacturer.**

**24/7 Phone Support – Call us anytime. 407-772-8131**



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