

Field Fiberglass Lay-Up Instructions for Containment Sumps

1. GENERAL

1.1. Before beginning the lay-up work, read through the entire Field Fiberglass Lay-Up Instructions for Containment Sumps (subsequently referred to as "Field Lay-Up Instructions") and the sections of the Xerxes Installation Manual and Operating Guidelines (subsequently referred to as "Installation Manual") that are noted in these instructions. It is the responsibility of the tank's owner and the person performing the lay-up work to follow all requirements contained in these Field Lay-Up Instructions and the Installation Manual, and to comply with all federal, state and local safety regulations that may apply to fiberglass lay-up.

1.2. No instructions or procedures presented in these Field Lay-Up Instructions or the Installation Manual should be interpreted so as to put at risk any person's health or safety, or to harm any property or the environment.

1.3. Keep these Field Lay-Up Instructions and the Installation Manual available at the work site to refer to safety procedures as needed.

WARNING

Review material safety data sheets before using the materials so you are informed of safety precautions and dangers in dealing with these materials. Failure to do so could result in death or serious injury.

1.4. It is important to follow these instructions in order to safely and properly join the containment sump collar and top to the containment sump.

WARNING

Failure to follow these instructions may cause tank failure, serious personal injury or property damage.

1.5. The Xerxes limited warranty applies only to a tank and Xerxes-supplied accessories that are installed according to the Installation Manual and these or any other relevant instructions.

1.6. Only persons who are experienced with fiberglass lay-up should perform fiberglass lay-up procedures.

1.7. The following materials are needed to seal each joint of a 42-inch or 48-inch containment sump or watertight containment sump:

- 1 gallon of premium resin compatible with petroleum
- 4 ounces of MEKP (catalyst) and measuring cup
- 24 pieces of 6-inch x 28-inch, 1 1/2-ounce fiberglass mat
- material safety data sheets for premium resin, MEKP and fiberglass mat

1.7.1. A watertight sump riser may have two joints that need to be sealed.

1.8. Keep all materials dry and clean, and store them in a cool, dry area that has a temperature lower than 80°F and higher than 30°F.

1.9. The following items are needed to mix and apply the laminate seal:

- stir sticks
- rubber gloves
- safety glasses
- brush
- roller
- dust mask
- mixing bucket
- saber saw or cutting tool to trim the containment sump (if needed)
- grinder or sander for abrading the lay-up area
- acetone for cleaning the tools (available at hardware stores).

WARNING

Use air-powered tools to prevent shock, fire or explosion from flammable liquids and vapors. Do not use electric tools (saws, grinders, etc.) when fuel is in tank or catalyzed resin is used. Electrical tools should not be used

within 50 feet of the tank. Failure to follow this warning could result in death or serious injury.

WARNING

Do not use gasoline or solvents other than acetone to clean tools. Failure to follow this warning could result in death or serious injury.

1.10. Do not do this lay-up work in rain or snow, or excessive heat or cold. Ideal temperatures for doing this work are between 65°F and 85°F. If this is not possible, do the work in an area that is dry, shaded and/or protected from adverse weather conditions, including those mentioned above.

2. PREPARING COLLAR AND RISER FOR LAY-UP

2.1. The burial depth of the tank determines length of containment sump.

2.2. To prepare the containment sump for lay-up, follow the Preparing Containment Sump Body and Collar Section of the Installation Manual with the following modifications:

2.2.1. Abrade the entire circumference of the outside surface of the riser and the collar at a distance of at least 4 inches in both directions from the point where the riser body meets the collar. (See FIGURE 2-1.)

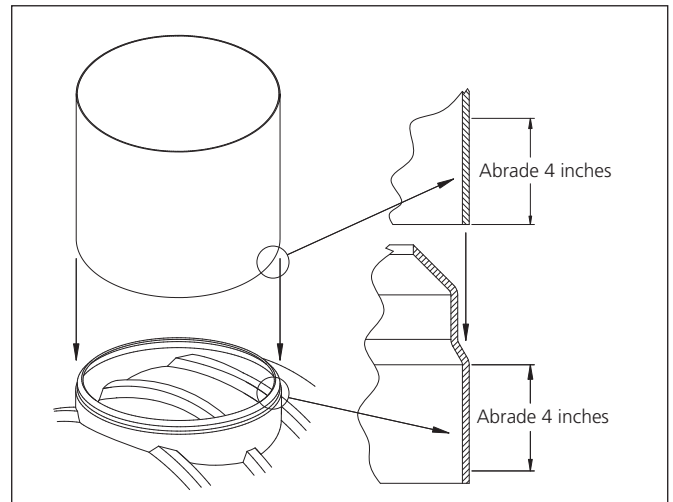


FIGURE 2-1

2.2.2. When using a watertight sump riser, abrade the entire circumference of the outside surface of the channel and the top of the riser body. (See FIGURE 2-2.)

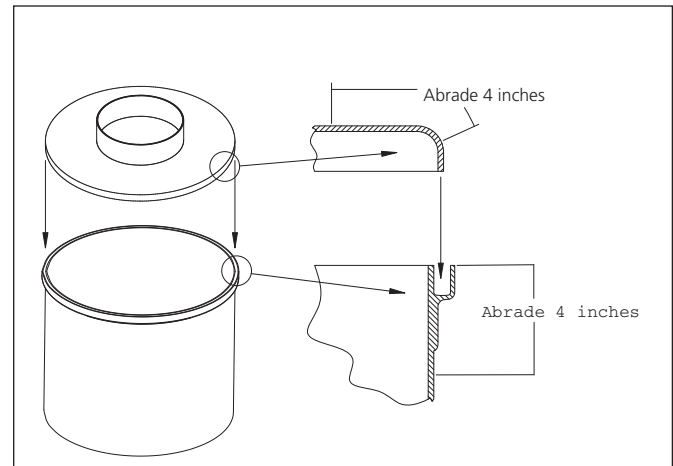


FIGURE 2-2

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CAUTION

Always wear safety glasses and a dust mask when abrading and sawing. Failure to do so may result in minor or moderate injury.

- 2.3. All areas on which the laminate will be placed must be abraded completely in order to achieve a suitable bond.
- 2.4. Place the riser body on the collar and position the watertight top on the riser (if you are installing the watertight model).
- 2.5. Measure and mark the riser body on its circumference to locate laminate placements. The laminate should be centered on the joint. (See FIGURE 2-2.)

3. PREPARATION FOR FIELD LAY-UP

CAUTION

Read and follow all safety and application instructions for the fiberglass materials. Failure to do so may cause water-seal failure and/or result in minor or moderate injury.

- 3.1. Prepare a work area that is clean, dry and well-ventilated, either naturally or mechanically. Working with materials in direct sunlight may accelerate the cure time. Therefore, be sure the work area is not in direct sunlight.
- 3.2. Take a piece of plywood or a similar flat surface to work on and cover it with a large piece of cardboard.

CAUTION

Always wear rubber gloves and safety glasses when handling and working with fiberglass materials. Failure to do so may result in minor or moderate injury.

- 3.3. Arrange materials within easy reach of this work area.

WARNING

Keep materials away from all flames, sparks or other heat sources. Smoking is prohibited within 50 feet of the work area. Failure to follow this warning could result in death or serious injury.

4. PREPARING THE RESIN/CATALYST MIXTURE

- 4.1. Mix the resin and catalyst according to the minimum and maximum proportions given in TABLE 4-1. The amount of catalyst noted in this table may be adjusted with temperature variations: higher temperatures may call for slightly less catalyst and lower temperatures may call for slightly more catalyst. An improper proportion of resin to catalyst may keep the laminate from setting up properly.

Resin to Catalyst Ratio

Resin	Catalyst in cool or overcast conditions	Catalyst in standard conditions	Catalyst in hot or sunny conditions
16 fl. oz. (1pt.)	6 cc	5 cc	4 cc
32 fl. oz. (1qt.)	12 cc	10 cc	8 cc
128 fl. oz. (1gal.)	48 cc	40 cc	32 cc

TABLE 4-1

- 4.2. Xerxes recommends that you begin by mixing 1 pint of catalyzed resin at a time. You can increase this amount to up to 1 quart as you become more familiar with the process.
- 4.3. Add the catalyst to the resin and mix thoroughly so one solid color is achieved. Streaks in the resin indicate uneven mixing.
- 4.4. Continue to mix single batches of catalyzed resin as you do the lay-up work so you have the catalyzed resin needed to create the laminate.
 - 4.4.1. You will need approximately 1 quart of catalyzed resin for the first layer of laminate, and approximately 3 quarts for the second layer.
- 4.5. Each fresh batch of catalyzed resin will give you a working time of approximately 20 minutes.

5. LAMINATING THE JOINT

- 5.1. Sealing each joint requires one layer of laminate made with 24 pieces of 6-inch by 28-inch fiberglass mat. Xerxes recommends that you have extra pieces of fiberglass mat to work with.
- 5.2. To create a laminate, brush a thin layer of catalyzed resin on the cardboard work surface and apply one piece of 6-inch by 28-inch fiberglass mat.
 - 5.2.1. Brush this fiberglass mat with resin until the fibers are saturated. Take care not to apply an excessive amount of resin.
 - 5.2.2. Place a second piece of 6-inch by 28-inch fiberglass mat on top of the first and repeat Point 5.2.1. This is the first piece of laminate.
- 5.3. Pick up the laminate and center it on the riser seam. (See FIGURE 5-1 for proper placement of laminate.)
- 5.4. Taking care to keep the laminate in place and centered on the seam, smooth any protruding glass fibers with a brush. Wearing rubber gloves, you may use your fingers for this step.

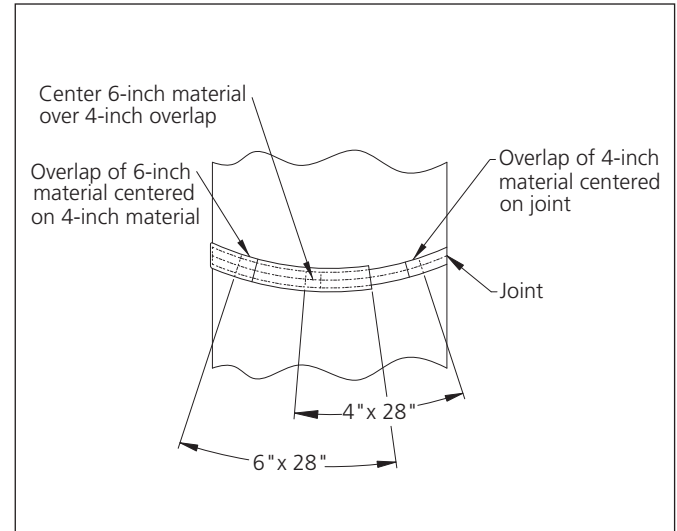


FIGURE 5-1

- 5.5. Roll out the laminate to remove all trapped air and smooth all edges. When the laminate is properly smoothed, any white glass in the laminate should disappear and become one solid color. Note: No air pockets, wrinkles, burrs or protruding glass fibers should remain in the laminate.
- 5.6. To create the next five laminates for the first layer of laminate, repeat Point 5.2. through 5.2.2., using 10 additional pieces of 6-inch by 28-inch fiberglass mat.
- 5.7. When placing the remaining five laminates on a 42-inch containment sump, each laminate should overlap the preceding laminate by 6 inches [3 inches on a 48-inch sump]. The sixth laminate on a 42-inch sump should overlap the preceding laminate by 6 inches [3 inches on a 48-inch sump] and the first laminate by 6 inches [3 inches on a 48-inch sump].
- 5.8. After placing each laminate, repeat Points 5.4. and 5.5.
- 5.9. After placing the six laminates around the joint, let the first layer of laminate cure until it is cool to the touch. This should take between 1/2 hour and 1 hour.
- 5.10. Abrade the first layer of laminate to remove any burrs.

CAUTION

After each lay-up is completed and whenever necessary during the roll-out procedure, clean the roller, brush and gloves with acetone to ensure that no resin has gelled or hardened on the tools. Failure to do this may cause the fiberglass seal to fail.

- 5.11. Make sure all abraded areas are still adequately coated with resin. If they are not, apply resin/catalyst mixture to any exposed abraded surface of the riser and collar. Then cure areas where you applied more resin/catalyst.
- 5.12. Xerxes recommends that you wait at least 4 hours before backfilling around the containment sump or exposing it to water after final cure is complete.

CAUTION

Dispose of unused materials in accordance with all federal, state and local safety regulations that may apply to these materials. DO NOT discard these materials with general trash and debris.