



# CERTIFICATION / RE-CERTIFICATION EXAM FOR A PermaWrap™ INSTALLATION TECHNICIAN

## Test Instructions

1. Re-certification is required annually, 12 months from the last certification date. Re-certification may be accomplished by a thorough review of the PermaWrap installation procedures and successfully completing the written re-certification exam.
2. We recommended the applicant use the PermaWrap Installation Manual during the examination. It is very important the applicant have a thorough knowledge and understanding of all the correct procedures necessary to apply the PermaWrap composite reinforcement system correctly and safely. If the applicant has any questions or does not understand a procedure, please consult your Certified Trainer or contact a WrapMaster representative for assistance.
3. A minimum score of 80% is required in order to attain certification or re-certification.
4. Fax, mail or e-mail completed examinations to:

WrapMaster, Inc.  
2701 State Highway 322  
Longview, Texas 75603  
Fax (903) 643-8181  
info@wrapmaster.us

Applicant: \_\_\_\_\_ Date: \_\_\_\_\_

Company: \_\_\_\_\_ Location: \_\_\_\_\_

Mailing Address: \_\_\_\_\_ Telephone: \_\_\_\_\_

Email Address: \_\_\_\_\_ Instructor: \_\_\_\_\_

Evaluation for:  **Certification**  **Re-certification**

### True or False (T/F)

- \_\_\_\_\_ 1. Only certified installers may apply the PermaWrap or WeldWrap reinforcement system.
- \_\_\_\_\_ 2. The PermaWrap and WeldWrap reinforcement system is a rigid composite sleeve, used to repair defects associated with general corrosion, dents, and gouges.
- \_\_\_\_\_ 3. The PermaWrap and WeldWrap system shall be applied only to “blunt” defects up to 80% wall loss.
- \_\_\_\_\_ 4. The PermaWrap reinforcement system may be used to repair cracks if the crack can be removed by grinding.
- \_\_\_\_\_ 5. All pipe coating containing “coal-tar” or “zinc” must be completely removed from the repair area.
- \_\_\_\_\_ 6. Coating residue containing “coal-tar” or “zinc” will speed the cure time of the adhesive.
- \_\_\_\_\_ 7. The PermaWrap and WeldWrap systems shall be applied only to “blunt” defects. All sharp edges must be removed prior to application of the sleeve.

## **True or False (cont.)**

- \_\_\_\_\_ 8. If Acetone, MEK or Toluene are unavailable, paint thinner may be used as a cleaning solvent.
- \_\_\_\_\_ 9. To prepare the pipe surface, the minimum cleanliness shall meet the provisions of a NACE #3 or SA 2½ finish.
- \_\_\_\_\_ 10. The PermaWrap system is commonly used as a temporary repair for internal defects.
- \_\_\_\_\_ 11. The application of the filler material in the corrosion defects, dents and gouges is to act as a load transferring material from the pipe to the sleeve.
- \_\_\_\_\_ 12. To install a PermaWrap sleeve over a girth weld, you must grind the weld surface smooth with the pipe surface prior to applying the sleeve.
- \_\_\_\_\_ 13. Cracks in girth welds may be repaired with the PermaWrap or WeldWrap system.
- \_\_\_\_\_ 14. The PermaWrap system is 8 layers and approximately ¾" thick when installed.
- \_\_\_\_\_ 15. The sleeve must extend a minimum of 2" beyond the edges of the defect.
- \_\_\_\_\_ 16. Although a PermaWrap or WeldWrap system must not be applied over "coal-tar" or "zinc" residue, these type coatings may be used after the adhesive has cured.
- \_\_\_\_\_ 17. Prior to sealing the edges of the PermaWrap or WeldWrap sleeve with adhesive, all excess filler material must be removed.
- \_\_\_\_\_ 18. Both the adhesive and filler putty have a minimum shelf life of 1 year if stored in a cool environment between 40°F – 70°F (5°C – 22°C).
- \_\_\_\_\_ 19. The PermaWrap and WeldWrap system must always be coated for protection from the environment.
- \_\_\_\_\_ 20. The adhesive and filler is provided in pre-portioned quantities with the quantity dependent on the size of the PermaWrap or WeldWrap system to be installed.

## **Multiple Choice**

21. The "load transfer path" is developed by the following:
- A. Filling all defects with the PermaPutty high compressive strength filler material.
  - B. Winding the sleeve around the pipe while applying the adhesive.
  - C. Tightening the sleeve until the adhesive and filler exude from the sleeve edges.
  - D. Curing of the adhesive to form a single continuous structural reinforcement.
  - E. All of the above.
22. Which statement is true?
- A. The PermaWrap reinforcement system may be used to permanently repair internal corrosion defects.
  - B. The PermaWrap reinforcement system should never be used to reinforce "sharp" defects. All sharp edges must be removed prior to installation.
  - C. The PermaWrap reinforcement system is a temporary repair for corrosion defects in the outer pipe wall with depths up to 80%.
  - D. A Certified Installer can train anyone to install the PermaWrap reinforcement system.

**Multiple Choice (cont.)**

23. Using the mix charts, add the activator quantity to the adhesive according to the following:
- A. The highest humidity expected to be encountered.
  - B. The lowest temperature encountered. (ambient vs. pipe)
  - C. The highest temperature encountered. (ambient vs. pipe)
  - D. None of the above.
24. The key steps to proper system installations are:
- A. Grit-blasting the pipe surface to a NACE #3 or SA 2½ finish.
  - B. Applying the filler putty in “slight” excess to all defect areas, across the “leading edge” of the anchor pad and on both sides of the pipe seam.
  - C. Attaching the sleeve to the anchor pad and aligning the edges of the sleeve.
  - D. Applying the adhesive while wrapping the sleeve.
  - E. Tightening the sleeve until the adhesive and filler exude.
  - F. Removing the excess filler and sealing all edges with the remaining adhesive.
  - G. All of the above.
25. For pipe surface preparation, the minimum cleanliness required shall meet a \_\_\_\_\_ finish or equivalent.
- A. NACE #1 or NACE #2
  - B. NACE #3 or SA 2½
  - C. NACE #4
  - D. None of the above.
26. The PermaWrap and WeldWrap reinforcement systems are considered permanent repair methods for \_\_\_\_\_ dents and blunt defects up to 80% wall loss.
- A. Internal
  - B. External
  - C. Both Internal and External.
  - D. None of the above.
27. When the correct quantity of activator has been added, the adhesive will typically cure in approximately \_\_\_\_\_ hours.
- A. 1
  - B. 1½
  - C. 2
  - D. 6
28. The PermaGrip adhesive must attain a minimum hardness of \_\_\_\_\_ prior to applying a pipe coating and / or backfilling.
- A. 40 on a Shore A scale
  - B. 60 on a Shore A scale
  - C. 80 on a Shore A scale
  - D. None of the above.

## Multiple Choice (cont.)

29. When butting end-to-end multiple sleeves on a straight section of pipe, the maximum gap allowed between sleeves is \_\_\_\_\_ inch.
- A.  $\frac{1}{4}$
  - B.  $\frac{1}{2}$
  - C.  $\frac{3}{4}$
  - D. 1
30. If you cannot grit blast, which of the following is recommended to prepare the pipe for a PermaWrap or WeldWrap installation?
- A. Scrape the coating off, solvent wipe the area with Acetone, MEK or Toluene and apply the sleeve.
  - B. Wire brush the area to be repaired with a hand grinder, solvent wipe and apply the sleeve
  - C. Use a hand grinder with a 24-80 grit sanding disk then solvent wipe with Acetone, MEK or Toluene and apply the sleeve.
  - D. None of the above.
31. When applying a PermaWrap or WeldWrap system on a fusion bonded epoxy coated pipe (FBE), pipe surface preparation requires you do the following:
- A. Scrape the coating off and solvent wipe the area.
  - B. Grit-blast the pipe surface to a “near white” commercial finish.
  - C. Wire brush the area to be repaired with a hand grinder and clean with paint thinner.
  - D. Abrade the entire “work area” using 24-80 grit sandpaper removing all high spots and the “sheen”. Then solvent wipe the area with Acetone, MEK or Toluene.
32. If the PermaWrap or WeldWrap sleeve fails to attain a cure within 2-4 hours.
- A. It will eventually cure. Coat the sleeve and back fill.
  - B. Check the weather to see if it is too hot outside.
  - C. Remove the sleeve immediately from the pipe and discard.
  - D. Contact the manufacturer. It may be possible to use heat lamps to assist in curing.
  - E. All of the above.
33. When making a defect repair associated with a girth weld, the following methods are acceptable.
- A. Apply excess putty on the weld then apply a standard PermaWrap system over the weld.
  - B. Apply a PermaWrap system on both sides of the girth weld, apply the filler putty in “slight excess” over the cap of the weld, then install a third PermaWrap centered over the girth weld.
  - C. Apply the first two wraps of a WeldWrap system, apply filler putty in “slight excess” over the cap of the weld, then complete the installation of the WeldWrap system.
  - D. B & C
  - E. A & C

## Multiple Choice (cont.)

34. For condensing or “sweaty” pipe. Before applying the anchor pad you must,
- A. If permissible , use a “rose bud” or heat gun and apply just enough heat to flash the moisture from the pipe surface and apply the anchor pad.
  - B. Solvent wipe the pipe surface. When the solvent “flashes off” the condensate, apply the anchor pad.
  - C. Wipe the surface with a dry cloth. Apply aerosol spray contact adhesive, allow the adhesive to become tacky, then apply the anchor pad.
  - D. Any of the above
35. The filler putty is applied in “slight” excess to \_\_\_\_\_.
- A. The leading edge of the anchor pad.
  - B. All defect areas.
  - C. Both sides of long seam welds.
  - D. All of the above
  - E. None of the above
36. The PermaWrap and WeldWrap systems both restore the \_\_\_\_\_ of damaged pipe, to a minimum of pristine pipe conditions.
- A. Tensile Strength
  - B. Expansion Strength
  - C. Hoop Strength
  - D. Compressive Strength
37. During cold weather applications, ensure the adhesive is thoroughly mixed prior to installation by:
- A. Warming the adhesive for a faster cure.
  - B. Increasing the mix time to 5-6 minutes, scrape container sides, then mix for an additional 2-3 minutes.
  - C. Speed up the drill and mix the adhesive at a faster rate.
  - D. A & B
38. Just prior to applying the leading edge of the sleeve to the anchor pad, \_\_\_\_\_ should be done.
- A. Put excess adhesive on the anchor pad.
  - B. Remove the protective backing from the anchor pad.
  - C. Wipe the sleeve to be applied and check for cleanliness.
  - D. B & C
  - E. None of the above
39. What solvents are acceptable for pipe preparation and cleaning of the PermaWrap and WeldWrap?
- A. Toluene
  - B. Acetone
  - C. MEK
  - D. All of the above

**Multiple Choice (cont.)**

40. Only \_\_\_\_\_ can install a PermaWrap or WeldWrap system.
- A. Someone who can follow established procedures.
  - B. Someone with a mechanical aptitude.
  - C. Someone who is able to adjust to "on-site" conditions.
  - D. A certified installer.
41. After completing the installation of a PermaWrap or WeldWrap system, seal both side-edges and the "trailing" edge of the sleeve with \_\_\_\_\_.
- A. Excess filler putty and "transition taper" the side-edges.
  - B. Excess adhesive and "transition taper" the side-edges.
  - C. Caulking compound and bevel the ends.
  - D. Any of the procedures above.
42. The "Stop Reference Line" on the sleeve is provided to identify \_\_\_\_\_.
- A. The area to begin applying adhesive.
  - B. The location to install the Velcro tightening pads.
  - C. The termination of the adhesive application.
  - D. None of the above.
43. For best results, place the Velcro pad in the \_\_\_\_\_ of the sleeve and in the "best location" for engaging the Torque Bar Assembly.
- A. Top
  - B. Center
  - C. Bottom
  - D. Underside
44. What effect does "coal-tar" or "zinc" have on the PermaGrip adhesive?
- A. Coal-tar residue and the presence of zinc inhibit the curing and bonding properties of the adhesive.
  - B. Coal-tar residue and the presence of zinc speed up the curing and bonding properties of the adhesive.
  - C. They have no negative effects on the adhesive.
  - D. None of the above.
45. Keep both the adhesive container and the plastic paint tray out of direct sunlight until ready for use, this will prevent:
- A. "Heat build-up" which may effect "working time".
  - B. The adhesive from being runny and hard to apply.
  - C. Extending the time it takes the adhesive to cure.
  - D. All of the above.

## Short Answer Quiz

46. What can be done to maintain the "shelve life" of the adhesive and activators?
47. Why is it important to seal the ends of the PermaWrap or WeldWrap sleeve?
48. If the temperature is less than 32°F (0°C) or greater than 100°F (38°C), what should be done before installing the sleeve?
- (a) If less than 32°F (0°C)
  - (b) If greater than 100°F (38°C)
49. Why is it necessary to coat the exterior surface of a PermaWrap or WeldWrap system when installed?
- (a) Above ground
  - (b) Below ground
50. What is the color of the following kit components?
- (a) PermaPutty Part A
  - (b) PermaPutty Part B
  - (c) PermaGrip Adhesive
  - (d) Adhesive activator