

NAPCA Bulletin 6-69-94-5

SUGGESTED PROCEDURES FOR COATING FIELD JOINTS USING HEAT SHRINKABLE MATERIALS

1. General

- a. These specifications may be used in whole or in part by anyone without prejudice, if recognition of the source is included. The National Association of Pipe Coating Applicators (NAPCA) assumes no responsibility for the interpretation or use of these specifications.
- b. The intended use of these coatings is to provide corrosion protection for buried pipelines. Above ground storage of coated pipe in excess of 6 months without additional Ultraviolet protection is not recommended.
- c. The following definitions apply:
 - i. Applicator - The contractor who applies the coating to the pipe.
 - ii. Company - The purchaser of the coated pipe or the entity for whom the Applicator coats the pipe.
 - iii. SSPC - The Steel Structures Painting Council.
 - iv. NACE - NACE International.
 - v. Manufacturer - The company that makes the coating materials which are applied to the pipe.

2. Scope

- a. The Applicator shall furnish all labor, equipment and material required, shall prepare all surfaces to be coated and shall apply the coating to all surfaces to be coated.
- b. Heat shrinkable sleeves are designed to provide moisture penetration resistance and corrosion prevention for pipeline field joints.
- c. The product is a heat shrinkable material fabricated from cross-linked polyolefin pre-coated with a mastic or adhesive.
- d. These adhesives display properties not possible with pressure-sensitive tapes.
- e. The sleeves shrink when heated and force the mastic (or adhesive) to flow into the irregularities of the weld.
- f. The shrinking action provides a simple, reproducible delivery system for the mastic or adhesive.
- g. When shrunk, the polyolefin sleeve provides penetration and abrasion resistance during handling, backfill, and operation of the pipe. It also provides resistance against soil stresses, alkalis, acids, microbes and fungi.
- h. Wrap around sleeves can be installed after welding and inspection.
- i. Heat shrinkable sleeves are also self priming in nature and bond to virtually all substrates including heavy wall pipe, polyethylene, epoxy powder and bituminous coatings.

3. Coating Material

- a. All coating materials, including repair or patch materials, purchased or used under these specifications, shall be packaged in suitable and approved containers. The containers shall be plainly marked with the name of the Manufacturer, type of material and batch or lot number where applicable. Bulk shipments shall be allowed provided the above information is included in the bill of lading.
- b. The coating material shall be packaged in containers suitable to keep the contents clean and dry during handling, shipping and storage. Storage and handling conditions shall be in accordance with the Manufacturer's recommendations.
- c. Precautions shall be taken during the handling, shipping and storage of all materials to prevent damage to the containers that would result in contamination of the coating materials. All contaminated, or otherwise damaged materials shall be discarded.

4. **Surface Preparation**

- a. For tube type sleeves, before welding the pipe, slide the sleeves over one end and move it at least 3 feet (1 meter) away from the joint to prevent damage from weld spatter.
- b. The surface to be coated must be cleaned of all rust, mud, oil, grease, moisture, mill lacquer or other deleterious substances. Wire brushing and/or solvent washing is sufficient in most instances. Weld splatter should be removed by filing.
- c. Coal tar and asphalt pipe coatings require removal of kraft paper prior to installation of the sleeve.
- d. Preheat the exposed metal area to a hand warm temperature - approximately 120 degrees F - taking care to remove all existing moisture from the pipe surface.
- e. Preheating is accomplished with the use of a butane or propane torch capable of providing a high output yellow or blue flame. Other heating sources are available for special applications. Consult the Manufacturer for specific instructions.

5. **Tube Type Sleeve Application**

- a. Center the sleeve over the joint and begin heating it with a propane or butane torch, having a high output yellow or blue flame.
- b. Start at the top center of the sleeve and shrink it all around the diameter of the pipe working toward one end.
- c. Keep the torch moving to avoid burning the sleeve.
- d. When completed, work circumferentially from the center to the opposite end.
- e. The sleeve is fully recovered when conformed to the pipe diameter and mastic flow is evident at the sleeve edges.

6. **Installation - Wrap Around Sleeves**

- a. If the sleeve is packaged in a poly bag, remove and discard the packing. If the closure seal is included, put it in an area where it will not be contaminated by dirt or moisture.
- b. Remove the protective release paper. Hold the sleeve vertically and center it on the weld joint.
- c. Press the sleeve to the far side of the top of the pipe (approximately 11 o'clock).

When applied correctly, the leading edge of the wrap will face down toward the bottom of the ditch.

- d. The release paper may be removed as the sleeve is wrapped around the joint to insure against mastic contamination.
- e. Wrap the sleeve around the joint. Some sleeves require heating of overlap prior to contact with the pipe; some do not.
- f. If a closure seal is required, center the closure seal on the overlap and press down. Some sleeves require heating of the closure prior to sleeve recovery.
- g. After proper closure application, begin sleeve recovery. With the torch, start at the center of the sleeve and shrink it all around the diameter of the pipe.
- h. Keep the torch moving using broad circumferential strokes to avoid burning. Continue shrinking the sleeve toward one end.
- i. Repeat this operation on the other end of the sleeve. The sleeve is fully recovered when conformed to the pipe diameter and mastic is evident at the sleeve's edges.
- j. Consult the Manufacturer for instructions on specific procedures.

7. **Inspection and Testing**

Test with Holiday Detector, voltage not to exceed that used by plant coating application.

8. **Lowering and Backfilling**

- a. Allow the joint and sleeve to cool at least thirty minutes before lowering in.
- b. Selected backfill, containing no large or sharp stones, should be used to avoid damaging the sleeve or coating during the backfilling operation.
- c. A water quench may be used to reduce backfill time, if required.