



U.S. PATENT NOS. 4,983,449 and 5,120,381. FOREIGN PATENTS

SPECIFICATION FOR HANDLING AND MACHINE APPLICATION OF POLYGUARD RD-6 COATING FOR BELOW GROUND PIPING

1. MATERIALS:

1.1 COATING THICKNESS

1.1.1 **RD-6** is 50 mils (1.27 mm) nominal total thickness, consisting of 10 mils (.25mm) of woven mesh geotextile fabric on the outside laminated to 40 mils (1.02 mm) of rubberized bituminous compound. A release sheet separates layers in a roll.

1.2 ROLL WIDTH

1.2.1 Suggested roll widths for various sized pipes as follows:



Application of RD-6 by machine is strongly recommended wherever possible. The increased tension of machine application assists in resisting soil stress.

Diameter of Pipe Being Coated	Width of RD-6 Roll suggested
4 inch to 6 inches (101.6 mm to 152.4 mm)	4 inch (101.6 mm)
6 inch to 48 inch (152.4 mm to 121.92 cm)	6 inch (152.4 mm)

1.2.2 Roll widths based upon:

Two-spindle application where one roll of coating and one roll of outerwrap are applied simultaneously, or

One-spindle application where one roll of coating is applied. (A second machine can be used to apply the outerwrap.)

1.3 OUTERWRAP

1.3.1 *Unbonded type:* **POLYGUARD SP-6 OUTERWRAP**

1.3.1.1 **POLYGUARD SP-6 OUTERWRAP** consists of a strong non woven, felt-like polypropylene fabric.



This Information is based on our best knowledge, but POLYGUARD cannot guarantee the results to be obtained.

POLYGUARD PRODUCTS, INC • ENNIS, TEXAS 75120-0755
 PH: 214-515-5000 • 800-541-4994 • FAX: 972-875-9425
 Web Site: www.polyguardproducts.com



Polyguard has been ISO 9000 certified since 1996. Current certifications are:
 - American Natl. Standards Institute
 - Dutch Council for Certification
 - Deutscher Akkreditierungs Rat

1.4 LONGITUDINAL MILL WELD SEAM STRIPPING MATERIAL (where required on DSAW pipe)

1.4.1 *Polyguard RD-6* or

1.4.2 **POLYGUARD 606** - A 60 mil (1.52 mm) thick, reinforced coating consisting of a rubberized bituminous compound. It has no backing on either side of the compound. Release sheets separate layers in a roll.

2. HANDLING OF COATING MATERIALS:

- 2.1 Coating and wrapping materials shall be hauled and stored in such a manner as to prevent injury to packages. No packages shall be dropped from trucks or handled with hooks.
- 2.2 All coating and wrapping materials shall be protected from the elements. Wrapping materials shall be transported only as needed during application of the coating, conveyed in a covered vehicle and moved directly from the vehicle to the coating or wrapping machines as required.
- 2.3 Coating and liquid adhesive shall be maintained at a temperature of 45 deg. F. (7 deg. C) or higher at time of application.

3. COATING APPLICATION:

3.1 PIPE

3.1.1 Surface Preparation

Surface preparation of the pipe shall include:

- A. Removal of all visible oil and grease, by swabbing with a safety solvent that does not leave residue.
- B. Removal of splatter and slag from welds and pipe surface by filing, wire brushing or other methods satisfactory to Company representative.
- C. Minimum requirements: Pipe shall be cleaned to be free of all mill scale, loose rust, knurls, frost, dust, moisture and other deleterious matter. If power brushes are used in the cleaning process, a polished surface shall be avoided.
- D. Blast Cleaning (*if specified*): It is required to obtain a commercial finish (*minimum*), as described by NACE No. 3.
- E. Cleaning to the satisfaction of Company representative. Bare pipe shall be considered clean when all foreign matter has been removed, and a surface cleaned to the parent metal is immediately available to the coating operation.
- F. Protection of the cleaned pipe such that it will remain free from contamination and be suitable for immediate coating application. In the event of surface contamination prior to coating application, pipe shall be reprocessed through the necessary cleaning steps outlined above.

3.1.2 Liquid Adhesive Application

All pipe shall be covered with **POLYGUARD 600 LIQUID ADHESIVE** after cleaning and before coating application. **LIQUID ADHESIVE** shall be applied with a clean brush or roller brush or other acceptable mechanical means to obtain uniform and complete coverage of the pipe surface. Liquid Adhesive shall be applied at a rate of approximately 400 square feet (10.0m²/Liter) per gallon and shall be dry or tacky/dry to touch prior to coating application.

3.1.3 Weld Stripping Material (*where required*)

Where DSAW pipe is involved, the longitudinal mill weld seam shall be stripped with **POLYGUARD RD-6** preferably or **POLYGUARD 606** - 6" wide stripping material after the liquid adhesive has been applied to the pipe and before application of the coating. In applying the stripping material, position the material over the weld so that when the roll is unwound, half the width will rest on both sides of the weld. As the material is applied to the weld, remove the inner separator sheet next to the weld. When completed, manually press

the stripping material into the weld crevices. When the **606** material is used, slowly remove the outer separator sheet from the compound while pressing the material with a piece of the release paper, to conform to the weld and pipe surface.

3.1.4 Coating (*by machine*)

- A. The primary coating shall be spirally wrapped by an approved machine on pipe suitably cleaned, and with liquid adhesive applied.
- B. The machine used shall be equipped with take-up spindles to remove and wind the separator sheet as the coating roll is applied to the pipe. The machine used shall be capable of applying the primary coating with uniform tension across the width of the roll equal to 15 lbs. (6.8 Kgs/25.4 mm) per inch minimum width (*dead weight*). The machine shall be equipped with a constant tension brake system to assure equalization of tension across the roll width and through out the complete unwind of the roll, regardless of the roll size.
- C. Operators shall make all necessary manual or machine adjustments to accomplish a uniform, tightly adhered coating having a lap of at least 1" (25.44 mm) over the preceding spirals. Care shall be taken that no wrinkles, puckers, voids, or breaks are left in the coating as a result of a deficiency in application.
- D. An unbonded outerwrap (*if specified by the Company*) shall be spirally applied. Operators shall make necessary adjustments to achieve a uniform, outerwrap having a lap of at least 1" (25.44 mm) over preceding spirals.
- E. Coated pipe shall be handled at all times with wide non-abrasive slings, belts or other equipment designed and maintained to prevent damage to the coating. All skid supports shall be padded to protect the coating. Equipment which the Company representative deems to be injurious to the coating shall not be permitted. Walking on the coated pipe shall not be permitted.

4. INSPECTION AND REPAIR:

- 4.1 Where the coated pipe is above ground, the coated pipe shall be holiday detected and lowered into the ditch with care. Coated pipe shall not be lowered into the ditch until it has been inspected and approved by the Company representative.
- 4.2 The coating system shall be holiday detected with an adjustable electronic detector as follows:

The thickness of the RD-6 compound is 40 mils with a 10 mil mesh backing that will allow the current from the holiday detector to easily penetrate if the compound is damaged. In a single layer of RD-6 set the detector at 4500 volts. Do not exceed 5500 volts. Excessive voltage can stress the coating and cause burn through. If POLYGUARD OUTERWRAP is to be included with the coating in the detection process, please consult the manufacturer for recommended voltage.
- 4.3 All holidays and defects shall be repaired by the Contractor to the satisfaction of the Company representative. If any coated pipe is damaged upon lowering into the ditch, it shall be repaired in the position deemed most practical by the Company representative.
- 4.4 All holidays and all damaged or defective coating shall be repaired immediately.
 - A. Small or pinhole type holidays can be repaired in the **RD-6** by applying liquid adhesive over the holiday area and when dry to touch, starting with RD-6, at the 2:00 o'clock position on the coated pipe surface and while covering the repair area, a minimum of 1 inch (25.4 mm) on all sides of the repair, make a complete wrap of 1-1/3 revolutions around the coated pipe surface, ending at the 10 o'clock position. This will make sure the tape laps on both sides are in a downward direction. If outerwrap is being used apply a layer of unbonded outerwrap over the repair area and attach with fiber reinforced strapping tape.
 - B. For larger holidays or where coating is damaged that exposes pipe, remove damaged coating and smooth edges before repair is made. If a hole or large void area occurs, fill in the area with a patch of RD-6 or 606 Filler tape to make sure bridging of the void does not occur. Finish repair as in A. above. If the damaged area is large enough that it requires a material patch larger than 6" (152.4 mm) x 12" (304.8 mm), then spiral wrap the pipe with **RD-6**, to include the damaged area. Over this, apply an outerwrap as in A. above.
 - C. If an unbonded outerwrap was used, remove outerwrap and make repair as in A. or B. above.

4.5 All coating repairs shall be reinspected as outlined above.

5.0 PRECAUTIONS:

- 5.1 The liquid adhesive is an industrial coating and would be harmful or fatal if swallowed. It is marked as red label from the standpoint of flash point. Prohibit flames, sparks, welding and smoking during application. Solvents could be irritating to the eyes. In case of contact with eyes, flush with water and contact physician.
- 5.2 Avoid prolonged contact with skin and breathing of vapor or spray mist from liquid adhesive. In confined areas, use adequate forced ventilation, fresh air masks, explosion proof equipment, and clean clothing.
- 5.3 This material is sold by Polyguard Products, Inc. only for the purposes described in this literature. Any other use of the products is the responsibility of the purchaser and Polyguard Products does not warrant nor will be responsible for any misuse of these products. Polyguard Products will replace material not meeting our published specifications within one year from date of sale.

6.0 MATERIAL SAFETY DATA:

- 6.1 All Polyguard Products Material Safety Data Sheets (MSDS) and precautionary labels should be read and understood by all user supervisory personnel and employees before using. Purchaser is responsible for complying with all applicable federal, state or local laws and regulations covering use, health, safety, and disposal of the product.

MAINTENANCE:

None required.

Technical Service:

Polyguard Products Inc.
Ennis, Texas 75120-0755
PH: 214.515.5000
FAX: 972.875.9425
www.polyguardproducts.com