

# POLYKEN®



## POLYKEN® GTC

### Cold Applied Geotextile Coating Reconditioning/Rehabilitation Application Specifications



CORROSION PROTECTION GROUP  
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Local Distributor / Representative:

For contact details of local Distributors / Representatives  
Please visit [www.berrycpg.com](http://www.berrycpg.com).

#### Headquarters

**Franklin, MA, USA**  
Tel: +1 508 918 1714  
US Toll Free: +1 800 248 0149  
Fax: +1 508 918 1910  
CPG@berryplastics.com

**Houston, TX, USA**  
Tel: +1 713 676 0085  
US Toll Free: +1 888 676 7202  
Fax: +1 713 676 0086  
CPGH@berryplastics.com

#### Tijuana, Mexico

Tel USA +1 858 633 9797  
Fax US: +1 858 633 9740  
Tel Mexico: +52 664 647 4397  
Fax Mexico: +52 664 607 9105  
CPGTJ@berryplastics.com

#### Westerlo, Belgium

Tel. +32 14 722500  
Fax +32 14 722570  
CPGE@berryplastics.com

#### Baroda, India

Tel: +91 2667 264721  
Fax: +91 2667 264724  
CPGIN@berryplastics.com

# **COLD APPLIED GEOTEXTILE COATING FIELD JOINT APPLICATION SPECIFICATION**

## **SCOPE**

- 1.0 General**
- 2.0 Material Storage**
- 3.0 Project Site Conditions**
- 4.0 Pipe Surface Preparation**
- 5.0 Liquid Adhesive Application**
- 6.0 Coating Application**
- 7.0 Coating Inspection and Repair**
- 8.0 Backfill**
- 9.0 Material Safety**

Materials Discussed in the Guideline:

- Polyken 1027 Liquid Adhesive
- Polyken 939 Mastic Filler
- Polyken GTC Corrosion Layer
- Polyken 950 Mechanical Layer

**COLD APPLIED GEOTEXTILE COATING  
RECONDITIONING/REHABILITATION APPLICATION SPECIFICATION**

**1.0     *GENERAL***

- 1.1     This specification will cover the proper application and installation of the Polyken GTC rehabilitation coating system for the exterior protection of steel pipelines.
- 1.2     The coating system shall be applied in accordance with Berry Plastics CPG specifications and the end-user specifications. The coating system shall be installed in accordance with size specifications per Berry Plastics CPG recommendations.
- 1.3     The pipeline contractor responsible for the application of the coating system shall furnish all equipment and properly trained and supervised labor and service required for the specified application of the coating system. All equipment and tools required for the application of the coating system shall be subject to the approval of the End-user Company. The pipeline contractor shall follow the Berry Plastics CPG application specifications and work in harmony with representatives of Berry Plastics CPG and the end-user to alleviate any difficulties during the application and installation.
- 1.4     The contractor shall be responsible for verifying the integrity of the coated pipeline. Damaged coating shall be repaired at the contractor's expense. All repair material shall be supplied by the pipeline contractor.
- 1.5     At the option of the end-user company or the pipeline construction contractor, Berry Plastics CPG will supply a service representative to assist or instruct the contractor and/or the end-user coating inspector with the proper application of the joint coating system.
- 1.6     The Berry Plastics CPG service representative shall have the authority, through the end-user representative, to suspend the application of the coating system until such time that the application satisfies Berry Plastics CPG application and quality control standards for the joint coating system.
- 1.7     Inspection of coated pipeline shall be performed by coating inspectors qualified either by experience or certified training. The coating system shall be applied by properly trained personnel in the application of the joint coating system and meet the approval of Berry Plastics CPG.
- 1.8     High-tack adhesive coatings are supplied with a coated release liner on the adhesive. This release liner is required to prevent the highly aggressive adhesive from prematurely bonding to the tape backing.

**2.0     *MATERIAL STORAGE***

- 2.1     All coating material shall be stored, handled, and transported in such a manner as to prevent damage to individual carton containers. Cartons, coating rolls, or individual repair rolls removed from the storage pallets shall not be dropped, rolled, or thrown in any manner as to damage the coating material. Cartons or coating rolls shall not be handled with hooks, ropes, cables, or any other mechanical devices as to damage the coating materials.
- 2.2     Factory rolls and/or cartons shall be stacked on end at all times and no higher than 72 inches (183 cm).
- 2.3     The coating material shall be stored and/or transported in a dry, ventilated location. Storage temperature shall be a minimum of 60°F / 16° C and not exceed 125°F / 52° C.

- 2.4 Individual cartons or rolls of coating material shall not contact bare ground or bare warehouse floor. Tools or equipment shall not be stacked on top of the rolls.
- 2.5 Coating materials that have been damaged or show signs of deterioration shall be inspected by representatives of Berry Plastics CPG and at the discretion of the end-user, be rejected.
- 2.6 Adhesive shall be stored in accordance with regulations that govern hazardous material storage. Adhesive inventory shall rotate on a first in - first out basis. Adhesive containers shall be marked with receiving date.
- 2.7 Coating system waste material, adhesive containers, stub rolls, empty cartons, release liners, separator papers, and related waste materials SHALL NOT be discarded along the pipeline right-of-way or in the pipeline ditch.
- 2.8 Roll separator paper, as supplied by Berry Plastics CPG, shall always be used with the coating. The separator paper prohibits adhesive edge bleed of the coating rolls from sticking to unintended surfaces.

### **3.0 PROJECT SITE CONDITIONS**

Project site conditions should be routinely monitored. Project site temperature issues should be used to determine the optimum roll-body application temperature for the coating system. Polyken recommends that the minimum roll body temperature of the Polyken GTC be approximately 70° F (21° C) during application. Particular site conditions may require that the coating application temperature be higher than the minimum requirement of approximately 70° F (21° C). Please refer to data below for guidance of when higher than minimum roll body temperature of approximately 70° F (21° C) would be required. Polyken 933 and/or 934 can be suitably applied at a minimum roll body temperature of 40° F (4.5° C).

#### **3.1 Cold conditions/Cold pipe**

- Ambient temperature: below 40° F (4.5° C)
- Pipeline temperature: below 40° F (4.5° C)

Polyken GTC roll body temperature should be 70°F to 90°F (21° C to 32.2° C). When conditions as noted above are in the 28°F (-2.2°C) and below range, it is recommended that the Polyken GTC be applied at approximately a 90°F (32.2°C) roll body temperature. The system should be applied in a prompt manner to ensure that the heated roll body temperature does not decrease by more than 20°F by roll end.

#### **3.2 Cold Conditions/ Warm pipe:**

- Ambient temperature: below 40° F (4.5° C)
- Pipeline temperature: 70°F to 150°F (21°C to 65.5°C)

Polyken GTC roll body temperature should approximate that of the pipeline temperature but with a roll body maximum of 110°F (43.3°C). A decrease in roll body temperature during application process should not be more than 20°F.

#### **3.3 Warm Conditions / Warm pipe:**

- Ambient temperature: above 40°F to 100°F (4° C to 38° C)
- Pipeline temperature: Identical to ambient

Polyken GTC roll body temperature should be minimum of 70°F (21°C). Application should be prompt enough so that roll body temperature would not decrease by more than - 20°F. If decrease in roll body temperature is expected to be more than 20°F by roll end then initial roll body temperature should be slightly higher than minimum 70°F (21°C).

#### 3.4 Warm Temperature Conditions:

- Ambient temperature: above 40°F to 100°F (4.5° C - 38° C)
- Pipeline temperature: 90°F to 150°F (32.2° C to / 65.5° C)

Polyken GTC roll body temperature should approximate that of the pipeline temperature but with a roll body maximum of 110°F (43.3°C). Decrease in roll body temperature during application process should not be more than 20°F. If drop in roll body temperature is expected to be more than 20°F by roll end then initial roll body temperature should be increased accordingly, but never above 110°F (43.3° C).

#### 4.0 ***PIPE SURFACE PREPARATION***

- 4.1 The pipe surface shall be free of old coatings, mud, oil, grease, or any other foreign material that will prevent the joint coating system from bonding to the steel pipe surface. Visible oil and grease shall be removed with suitable solvent. The steel surface shall be dry prior to the application of the liquid adhesive and coating system. KEROSENE shall NOT be used for cleaning the pipe joints. Heptane or Toluene is recommended. The solvent must be dry prior to the application of the system.
- 4.2 All bare pipe surfaces shall be either power wire brush or abrasive cleaned. The power wire brush cleaned surface shall be cleaned to a Swedish Standards Association (SSA), ISO-8501-ST2 or Steel Structure Painting Council (SSPC) SSPC-SP3-82 surface finish. The abrasive cleaned surface shall be a minimum commercial blast surface finish as specified in Swedish Standards Association (SSA), ISO 8501-SA 2.5 or Steel Structure Painting Council (SSPC) SSPC-SP6-82 surface finish. All burrs and weld slag and splatter shall be removed from the pipe surface.
- 4.3 The pipe surface shall be dry and free of any dust particulate prior to the application of the coating system. There shall be no flash rust on the pipe surface prior to the application of the coating system.
- 4.4 The pipe joint surface shall not be covered with dew, frost, or rain moisture prior to the application of the joint coating system. If required by the end-user, or if the pipe steel temperature is below 45 degrees F, or not at least 5 degrees above the dew point, prior to the application of the tape coating system, the pipe steel shall be heated to 120°F / 48.8° C, to remove any moisture trapped within the steel surface.

#### 5.0 ***LIQUID ADHESIVE APPLICATION***

- 5.1 The coating system shall ALWAYS be applied with Polyken 1027 liquid adhesive.
- 5.2 The adhesive is applied to the pipe steel surface by spraying, brushing or using a paint roller to a wet thickness of no less than 2 mils (51 microns) and no greater than 3 mils (76

- microns). The adhesive shall be thoroughly mixed prior to application on pipe. The adhesive container shall remain covered when not in use.
- 5.3 The adhesive shall cover the entire exposed steel surface including the raised circumferential weld bead and overlap onto the mill applied primary coating system by a minimum of 4 inches (10 cm).
- 5.4 The adhesive shall be “dry to the touch” prior to the application of the coating system.
- 5.5 The adhesive shall not be diluted. Adhesive cans shall remain covered when not in use to avoid solvent evaporation and contamination.
- 5.6 If required by the end-user, prior to the application of the coating system, the raised girth weld over 3/32” in height shall be coated with Polyken GTC. A 4 or 6” (10 or 15 cm) wide strip shall be centered, smoothed, and coat the entire surface of the raised girth weld.
- 5.7 In the case of an “O-Ring bell, or large step downs at the joint areas, the Polyken 939 solid mastic filler will be used to form a transition from the high point of the bell to the low point on the spigot, to allow the tape to conform with no air pocket or voids under the tape.
- 6.0 ***COATING APPLICATION***
- 6.1 The cold applied coating system shall be applied by hand or more preferably by using a hand-wrapping machine capable of maintaining even, constant tension across the width of the coating. The hand-wrapping machine shall be equipped with take up spindles to remove and wind the separator sheet as the coating is applied to the pipe. The use of gloves is highly recommended.
- 6.2 The joint wrap coating system shall be applied to the primed pipe in a spiral configuration. The wrapping process shall start at a minimum of 4 inches (10 cm) beyond the cutback edge of any existing coating and start on the downside of the pipe. The release liner should be removed just prior to the application of the coating to the primed pipe surface. This will prevent contamination of the high tack adhesive.
- 6.3 The coating system shall be applied under hand or machine tension that will result in a smooth, wrinkle free coating. The tension should be approximately 10 pounds per inch of product width. The minimum overlap width shall be 1” (25 mm). Particular attentions should be afforded while coating over the girth weld area, to prevent wrinkles in the coating.
- 6.4 When the outside pipe diameter is greater than 12” (30 cm), the ditch conditions dictate or required by end-user specifications; a perforated and unbonded Polyken 950 outer wrap shall be spirally applied over the Polyken GTC. A minimum overlap of 1” shall be used and the Polyken 950 outer wrap shall be applied to achieve a uniform smooth application. The end of the outer wrap spiral shall be cut on the downside at the 3 or 9 o’clock position on the pipe. The Polyken 950 needs to be taped down at the end in order to maintain proper tension.
- 6.5 If the coating will be exposed for a long period of time (greater than 6 months) care should be taken to cover the coating. Contact Berry Plastics for more information about protecting the coating during long term exposure.
- 6.6 The coating system materials shall be stored in a facility in accordance with section 2.0 at a minimum ambient temperature of 70°F (21°C) and not to exceed 120°F (49°C). The rolls shall be removed and transported from the storage facility on a daily consumption basis and conveyed to the right-of-way (ROW) in a heated and covered box, vehicle, or sled. The

heated box, vehicle, or sled shall be maintained at a minimum of 70°F (21°C) and not to exceed 120°F (49°C) to insure proper roll body temperature prior to application. The coating system shall be stored in the heated vehicle or sled a minimum of 12 hours prior to application and shall be removed directly from the heated vehicle or sled immediately prior to application. The coating system SHALL NOT be applied if the coating roll body temperature is below 60°F (16°C).

7.0 ***COATING INSPECTION REPAIR***

7.1 The coated field joint shall be electrically inspected for holidays with an adjustable Electronic Detector. For a single layer of Polyken GTC, the detector should be set at 4500 volts and shall never exceed 5500 volts. Excess voltage can damage the coating system. If the Polyken 950 outer wrap is used with the Polyken GTC, contact the manufacturer for recommended voltage setting. The travel rate of the holiday detector shall not exceed 1 foot (30 cm) per second, nor shall an activated holiday detector remain stationary over the coated field joint.

7.2 Coated field joints that are damaged prior to lowering in and backfilling shall be repaired immediately. The damage area shall be cleaned and the abraded portions trimmed level.

- Small or Pinhole type Holidays in the Polyken GTC shall be repaired by applying the Polyken 1027 liquid adhesive over the holiday area and when dry to touch, using the Polyken GTC, start at the 9:00 o'clock position on the coated pipe surface and cover the repair area a minimum of 1 inch on all sides of the repair. A complete wrap of 1-1/2 revolutions shall be made around the pipe with coating always cut on the downward side of the pipe. If Outerwrap is being used apply a layer of the unbonded Outerwrap around the repair.
- For larger Holidays or where the Polyken GTC damage exposes the steel pipe, remove the damaged coating and smooth edges before the repair is made. If the damaged area is less than 4" fill the area with a patch of Polyken GTC and cover the repair with an overlay of Polyken GTC material. If the repair area is larger than 4" the area shall be primed with Polyken 1027 liquid adhesive then spiral wrapped with Polyken GTC using a 1" minimum overlap covering the repair area a minimum of 1" on all sides of the repair. If outer wrap is being used apply a layer of the unbonded outer wrap over the repaired area.

8.0 ***BACKFILL***

8.1 Backfill material shall contain NO large or sharp stones that could damage the joint wrap coating system during backfilling.

8.2 Perforated rockshield shall be used on backfill operations requiring the utilization of supplemental rockshield protection.

8.3 Walking on the coated pipeline shall not be allowed.

9.0 ***MATERIAL SAFETY***

9.1 All Berry Plastics-CPG Product Material Safety Data Sheets, (MSDS), and precautionary Labels shall be read and understood by all user personnel before using the products.