



Protal 7000 and 7200 Hand Application Specifications

1.0 Scope

- 1.1 This specification covers the external surface preparation and coating of pipeline applications such as weld joints, special pipe sections, fittings and fabrication.

and other foreign matter. Very light shadow, very light streaks or slight discolorations shall be acceptable; however, at least 95% of the surface shall have the uniform gray appearance of a white metal blast-cleaned surface as defined by Swedish Pictorial Surface Preparation Standard Sa 2 1/2 or SSPC VIS-1.

2.0 Material and Storage

- 2.1 Material shall be Denso Protal liquid coating system as manufactured by Denso North America, 9747 Whithorn Drive, Houston, TX 77095 (Tel) 281-821-3355 (Fax) 281-821-0304 or 90 Ironside Crescent Unit 12, Toronto, Ontario, Canada M1X1M3 (Tel) 416-291-3435 (Fax) 416-291-0898. E-mail: info@densona.com.
- 2.2 Material shall meet the physical properties of the attached product data sheet.
- 2.3 Storage: Material shall be stored in a warm, dry place. Care shall be taken to insure the material is stored up right (arrows on boxes facing up). *Note: If the material is kept cold, it will become very viscous.*

- 4.3 Edges of the existing coating shall be roughened by power brushing or by sweep blasting the coating for a distance of 1" (25 mm) minimum.
- 4.4 All contaminants shall be removed from the steel surface to be coated. Oil and grease should be removed in accordance with SSPC SP-1 using non-oily solvent cleaner (i.e., xylene, MEK, ethanol, etc.).
- 4.5 The Contractor shall check the surface profile depth by using a suitable surface profile gauge (Press-O-Film Gauge or equal).
- 4.6 Metal areas that develop flash rust due to exposure to rain or moisture shall be given a sweep blast to return them to their originally blasted condition.

3.0 Equipment

- 3.1 For mixing, use strong wooden stir sticks, or power drills with mixing paddle.
- 3.2 For application, use 4" wide brushes or Denso applicator pads for small diameter pipe and/or 1/4" nap rollers for large diameter applications.
- 3.3 Wet film thickness gauges.

5.0 Application

- 5.1 The surface shall have no condensation, precipitation or any other forms of contamination on the blasted surface prior to coating.
- 5.2 The substrate temperature range for application of Protal is 40°F (4°C) to 185°F (85°C). The substrate temperature must be a minimum of 5°F (3°C) above the dew point temperature before proceeding with the coating operation. Ambient temperature may be lower than 40°F (4°C) if the substrate is heated. Preheating may be accomplished with propane torch or induction coil.
- 5.3 Protal shall be applied to the specified Dry Film Thickness (DFT) up to 40 mils using a brush, Denso applicator pad or roller. Wet film measurements shall be continuously performed to ensure close adherence to the thickness specification.
- 5.4 Mixing: Make sure the part A (Resin) and Part B (Hardener) components match in both material and size as specified on the containers. Mix the B component first, independent of the resin. Pour the contents into the

4.0 Surface Preparation

- 4.1 Material for abrasive cleaning shall be the appropriate blend of grit to produce an angular surface profile of 2.5 - 4 mils (0.063 - 0.10 mm).
- 4.2 All surfaces to be coated shall be grit blasted to a near-white finish (SSPC SP-10, NACE No. 2 or Sa 2 1/2). *Note: Near-white finish is interpreted to mean that all metal surfaces shall be blast cleaned to remove all dirt, mill scale, rust, corrosion products, oxides, paint*

part A (Resin) component. Mix until a uniform color is achieved making sure to scrape the bottom and sides of the container (approximately 2 minutes). No streaks shall be visible.

5.5 APPLICATION SHALL TAKE PLACE IMMEDIATELY AFTER MIXING. **Pour the product onto the surface and spread down and around the surface in bands beginning from the leading edge of the material to as far under the pipe as can be reached. Overlap the bands and onto the existing coating a minimum of 1".** Applicators shall use a brush to smooth out any obvious sags or rough edges, valleys, or drips. Special attention shall be given to weld buttons and bottom surfaces.

5.6 The thickness of Protal shall be checked periodically by wet film gauge to achieve the minimum wet film thickness specified. After the Protal has cured to a tack-free condition, the owner's representative and/or contractor's inspector should measure the film thickness by magnetic gauge and notify the applicator of their acceptance. Notification to the applicator of any inadequately coated sections must be made immediately.

5.7 Over-coating, when necessary, shall take place within 2 hours at 80°F (27°C). If second window has lapsed, the surface shall be roughed prior to application of the topcoat using 80 grit sand paper or by sweep blasting.

6.0 Inspection/Testing for Backfill

6.1 The finished coating shall be generally smooth and free of protuberances or holidays. All surfaces shall have the required minimum DFT. Inspection of hand application is best performed immediately after application.

6.2 Backfill time shall be determined by the "thumb nail test". The thumb nail test is defined by when one can no longer make a permanent indentation in the coating with his or her thumb nail. *Note: A full and/or chemical cure may not be achieved by backfill time. Therefore, in wet soils or water the coating will need a full chemical cure. (refer to Section 6.3 for acceptable field test for chemical cure)*

6.3 An acceptable field test to check to see if the coating has a full chemical cure, a solvent such as Xylene, MEK or Toluene can be rubbed on to the coating. If the gloss/sheen is removed the coating is not fully cured.

6.4 Spark testing shall be performed to ensure proper film thickness and for holiday inspection. The voltage used for testing weld joints and field applications shall be equal to that used for testing the mainline coating in the field not to exceed 100 volts per Protal mil or a maximum of 2000 volts for the typical 20 mil minimum requirements.

6.5 Denso and/or the owner's representative immediately upon completion of the work shall make final inspection of the completed application. Notification of all defects must be made within a reasonable time frame from completion of the work to allow for all repairs within the allowed time frame for the project.

7.0 Repairs

7.1 Holidays may be repaired by using Protal Repair Cartridge. Areas shall be roughened using Carborundum cloth or 80 grit sandpaper and wiped clean with a xylene soaked cloth prior to patching.

7.2 Areas larger than 0.15 sq. in., but less than 1.0 sq. ft. (100 sq. cm.) shall be repaired using Protal Cartridge Pack. Prepare surfaces with 80 grit sand paper and apply using a brush or trowel. Preheat using propane may be used up to 180°F (82°C).

8.0 Safety Precautions

8.1 Follow the guidelines detailed in the Material Safety Data Sheets (MSDS).

8.2 The contractor shall provide safe and secure access to application site.

8.3 Keep containers closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.