



Protal™ 7200

Brush 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.

2.0 Material and Storage

- 2.1 Material shall be Denso Protal 7200 coating system as manufactured by Denso, Inc., 9710 Telge Road, 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 between 40°F (4°C) to 105°F (41°C). 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. Do not allow material to freeze.*

3.0 Equipment

- 3.1 For mixing, use strong wooden stir sticks or power drills with appropriate mixing paddle.
- 3.2 For application, use 4" (100 mm) wide brushes, Denso applicator pads or Protal 9" (225 mm) roller.
- 3.3 Wet film thickness gauges.

4.0 Surface Preparation

- 4.1 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.).
- 4.2 Material for abrasive cleaning shall be the appropriate blend of abrasive to produce an angular surface profile of 2.5 - 5 mils (0.063 - 0.125 mm).
- 4.3 All surfaces to be coated shall be abrasive 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 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. In some instances where abrasive blasting is not permissible, the surface can be prepared to a near-white finish using SSPC SP-11. The key with this method is achieving the near white finish with a minimum 2.5 mil anchor profile. After cleaning, blow dry and/or wipe clean with an isopropyl alcohol, xylene or MEK soaked lint-free cloth.

- 4.4 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.
- 4.5 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.

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 50°F (10°C) to 212°F (100°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 50°F (10°C) if the substrate is heated. Preheating may be accomplished with a propane torch or induction coil prior to abrasive blasting.
- 5.3 Protal shall be applied to the specified Dry Film Thickness (DFT) using a brush, Denso applicator pad or roller. Wet film measurements shall be 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. Independently stir Part A and Part B separately for approximately 30 seconds. Pour the contents of Part B into the Part A container. Mix at a slow speed so as not to create a vortex that could introduce air into the product 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. Apply 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" (25 mm). 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 and maximum wet film thickness specified. After the Protal has cured, 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 recoat 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 smooth and free of runs, sags and/or holidays. All surfaces shall have the required minimum/maximum DFT. In general, the surface of the coating shall be no rougher than the base or substrate material.
- 6.2 After the Protal has cured to a hard cure 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.
- 6.3 For most applications, backfill can be accomplished when the coating reaches a Shore D of 80. Using a Shore D Durometer, measure the hardness on an area of the coating that measures a minimum 30 mils DFT. Several measurements should be taken at various locations circumferentially around the pipe to ensure sufficient cure.
- 6.4 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.
- 6.5 Holiday detection shall be performed on all coated areas. Detection voltage should be based on the nominal coating thickness using the following chart:
- A. 20-50 mils – 4,000 volts
 - B. 51-70 mils – 7,000 volts

Note that NACE SP0188 is an acceptable method of reference as well.

- 6.6 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.
- 6.7 Recoating: If a second coat is required and passes the cure test as described in section 6.3, the surfaces shall be roughened by sweep blasting. If the coating is soft, no surface preparation is required.

7.0 Repairs

- 7.1 For small pinhole repairs: Surfaces of repair up to 1/16 inch (2 mm) in diameter, roughen the surface of the parent coating, to remove gloss, around the holiday for at least 1 inch (25 mm). Use 80 - 120 grit sandpaper or light sweep blasting.
- 7.2 Medium sized repairs: Surfaces of repair areas up to 4 in² (25 cm²) in size, shall be prepared by abrasive blasting, as specified in Section 4, or by power tool cleaning in accordance with SSPC- SP 11 to remove dirt, scale, rust, damaged coating and any other foreign material to a bare metal condition and retain or produce the surface profile required by Section 4.0.
- 7.3 Large repairs: Surfaces of repair areas exceeding 4 in² (25 cm²) shall be repaired by abrasive blast cleaning as specified in Section 4.0.
- 7.4 The adjacent parent coating and any holidays or damaged coating adjacent to the cutback area shall be roughened for at least 1 inch (25 mm) around the repair and the edges shall be feathered.
- 7.5 After abrading, all dust shall be removed from the prepared areas using compressed air, a clean, dry bristle brush, a clean dry cloth or removed in accordance with SSPC-SP-1 using acetone, xylene or MEK.
- 7.6 Refer to "7200 Accelerated Cure Specifications for Repairs" for additional information.

8.0 Safety Precautions

- 8.1 Follow the guidelines detailed in the Safety Data Sheets (SDS).
- 8.2 Keep containers closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.
- 8.3 Always refer to project specifications as they may supercede Denso specifications.



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