



Protal™ 600 CTE, Protal™ 600 CTE Low VOC & Protal™ 650 CTR Epoxy Spray Application Specifications

1.0 Scope

- 1.1 This specification covers the surface preparation and coating of steel piles, sheet piles, gates, pipelines, and tanks.

2.0 Material and Storage

- 2.1 Material shall be Denso Protal Coal Tar Coating System as manufactured by Denso North America, 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 The containers shall be stored up right. Storage of the material shall be in a warm dry place, between 40°F (4°C) to 95°F (35°C).

3.0 Equipment

- 3.1 Equipment shall be a single or plural component airless or hydraulic spray unit capable of pumping at the correct ratio for the specified Protal Coal Tar coating (see product data sheet). For airless spray the unit shall be a recommended pump 70:1, minimum of 68:1 spray pump with a recommended hose length, 100ft ½" (30.6 m), 25ft 3/8th" (7.7 m) hose (150' max.) with a 25ft ¼" (7.6 m) whip. A Graco mastic gun, used with a 27 thou to 31 thou tip size, is recommended. For plural spray application, use the same configuration as listed above and make sure the plural unit is set for a 4:1 mix ratio. The Part A temperature settings should be 100°F-120°F (38°C - 49°C) and the part B should be 90°F-110°F (32°C - 43°C). The temperature setting for the hose bundle should be 100°F-120°F (38°C - 49°C).
- 3.2 Archco 400E Thinner is recommended to clean the equipment.
- 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 detergent, emulsion, or a fresh-water power wash.

- 4.2 Material for abrasive cleaning shall be the appropriate blend of grit 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 grit blasted to a near-white finish (SSPC SP-10, NACE No. 2 or ISO 8505-1 Sa 2 1/2). *Note: Near-white finish is interpreted to mean that all metal surfaces shall be blasted clean to remove all dirt, mill scale, rust, corrosion products, oxides, paint and other foreign matter. Very light shadow, very light streaks or slight discoloration's 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.*
- 4.4 Blasted surfaces must be vacuumed to insure all loose debris is removed from blasted surfaces and anchor profile prior to application of coating. The Contractor shall check the surface profile depth by using a suitable surface profile gauge (Press-O-Film Gauge or equal).
- 4.5 After blasting, an approved rust inhibitor and salt remover may be used to hold the blast until the coating application can be completed. Metal areas that develop flash rust due to exposure to moisture shall be given a sweep blast to return them to their original blasted condition prior to coating.
- 4.6 Any gaps due to the presence of plates or supports, etc. shall be caulked prior to the finish coat application.

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 600 CTE, Protal 600 Low VOC CTE, and Protal 650 CTR is 41°F (5°C) to 140°F (60°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 can be lower if the substrate is heated.
- 5.3 Each component (A and B) shall be thoroughly mixed

using an air-driven Jiffy mixer or equivalent prior to spraying. If using airless spray technique, add Part B to the Part A container and mix thoroughly until a uniform color is achieved. If a thinner viscosity is desired, add Archco 400 E Thinner to the mixture and continue to mix. It is recommended that no more than 5% by weight be added. Once mixed, the system is ready for spraying.

5.4 Using the prescribed equipment (Section 3.0), Protal 600 CTE, Protal 600 Low VOC CTE, and Protal 650 CTR shall be applied using a wet-on-wet technique to the specified Dry Film Thickness (DFT). It can be applied in one or two coats from 16-26 mils (406-660 microns) WFT for a single coat or 8-13 mils (203-330 microns) WFT for each of two coats.

5.5 The thickness of Protal 600 CTE, Protal 600 Low VOC CTE, and Protal 650 CTR should be checked continuously by wet film gauge to achieve the minimum/maximum film thickness specified. Notification to the applicator of any inadequately coated sections must be made immediately and repaired.

6.0 Inspection

6.1 The finished coating shall be smooth and of uniform millage with no 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 Protal 600 CTE, Protal 600 Low VOC CTE, and Protal 650 CTR 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, the coated substrate can be put into service when the coating reaches a Shore D of 70. The "thumb nail test" can also be used. The thumb nail test is defined by when one can no longer make a permanent indentation in the coating using one's thumb nail.

6.4 An acceptable field test for determination of whether the coating has achieved a full chemical cure consists of rubbing a solvent, such as Xylene, MEK, or Toluene, on the coating. If the glass/sheen is removed the coating is not fully cured.

6.5 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 or 125 volts/mil. (4,920 V/mm) based on the specified min. mil. thickness.

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 Pinhole repairs may be repaired by using Protal 600 CTE, Protal 600 Low VOC CTE, and Protal 650 CTR. Areas shall be roughened a minimum 1 in. (25 mm) around holiday using Carborundum cloth or 80 grit sandpaper and wiped clean with a xylene soaked cloth prior to patching.

7.2 All holidays shall be repaired.

7.3 Areas larger than 0.15 sq. in. (0.9 sq. cm.), but less than 1.0 sq. ft. (1000 sq. cm.) shall be repaired using a Protal 600 CTE, Protal 600 Low VOC CTE, and Protal 650 CTR. The surface to be coated shall be clean and dry prior to applying the coating. Surfaces shall be pre-heated in accordance with Section 5.2. Areas requiring repair shall be prepared with a surface grinder or by grit blasting prior to application of the coating. All edges of the surrounding area should be feathered prior to performing the repair.

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 No open flames, smoking or welding will be allowed in the immediate vicinity during the spray application of Protal 600 CTE, Protal 600 Low VOC CTE, and Protal 650 CTR.

8.4 Always refer to project specifications as they may supersede Denso specifications.



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