Protal™ ST Epoxy Mastic
Brush Application Specifications

1.0 Scope

1.1 This specification covers the external surface preparation and coating of above ground pipeline applications including, flanges, valves, couplings, risers, straight pipe, pipe supports and hangers, structural steel, etc.

2.0 Material and Storage

2.1 Material shall be Denso Protal ST Epoxy Mastic 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 Storage: Material shall be stored in a warm, dry place Between 40°F (4°C) and 80°F (30°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. Storing at extremely high temperatures may reduce shelf life.*

3.0 Equipment

3.1 For mixing, use strong wooden stir sticks, or power drills with mixing paddle.

3.2 For application, use brush or rollers.

3.3 Wet film thickness gauges.

4.0 Surface Preparation

4.1 Remove dirt, grease and oil including excessive moisture and frost in accordance with the requirements of SSPC-SP-1, “Solvent Cleaning”.

4.2 Remove weld spatter, sharp points and edges. This can be achieved using power brushing or machine grinding.

4.3 Remove loose rust, paint and foreign matter by hand and/or power tools cleaning in accordance with SSPC-SP-2, or SP-3, “Hand Tool Cleaning” or “Power Tool Cleaning” respectively.

4.4 High pressure water blasting (3,000 - 7,000 psi / 20.6 MPa - 48.2 MPa) may be used to prepare the surface.

4.5 If the surface is severely corroded, chipping hammers and needle guns will be required. The surface should finally be cleaned with a vacuum cleaner, cleaned dry with compressed air and/or a clean brush. The steel should then have a faint metallic sheen.

5.0 Application

5.1 The substrate temperature range for application of Protal ST Epoxy is 50°F (10°C) to 125°F (52°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 propane torch.

5.2 Protal ST shall be brush or roller applied to a wet film thickness of 5 to 10 mils (4 to 8 mils DFT) per coat. Wet film measurements shall be continuously performed to ensure close adherence to the thickness specification.

5.3 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 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.

5.4 Application shall take place immediately after mixing. 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, bottom surfaces, and irregular shapes. An initial stripe coat to sharp edges and corners is recommended.

5.5 The thickness of Protal ST shall be checked periodically by wet film gauge to achieve the specified wet film thickness (up to 10 mils / 254 microns). After the Protal ST 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 (up to 8 mils / 203 microns DFT). Notification to the applicator of any inadequately coated sections must be made immediately.

NOTE: Depending on temperature, multiple coats may be required to obtain desired appearance and recommended DFT.

5.6 Recoat (second coat of Protal ST) shall be applied based on the following substrate temperatures:

50°F (10°C)	12 Hours (min.)
60°F (16°C)	8 Hours (min.)
77°F (25°C)	4 Hours (min.)
95°F (35°C)	2 Hours (min.)

THESE ARE **MINIMUM WAIT TIMES** BASED ON THE TEMPERATURES ABOVE. Second coat shall not take place until this time has lapsed. Maximum suggested recoat time is within 48 hours. If more than 48 hours passes the surface should be lightly abraded and then wiped clean.

5.7 Topcoat (Denso Weathershield 65) shall be applied based on the following substrate temperatures:

50°F (10°C)	24 Hours (min.)
60°F (16°C)	16 Hours (min.)
77°F (25°C)	8 Hours (min.)
95°F (35°C)	4 Hours (min.)

THESE ARE **MINIMUM WAIT TIMES** BASED ON THE TEMPERATURES ABOVE. Application of Denso Weathershield 65 shall not take place until this time has lapsed. Maximum suggested recoat time is within 7 days. If more than 7 days passes the surface should be lightly abraded and then wiped clean.

6.0 Inspection

6.1 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 Safety Precautions

7.1 Follow the guidelines detailed in the Safety Data Sheets (SDS).

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

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

DENSO NORTH AMERICA

HOUSTON:
9710 Telge Road,
Houston, Texas,
U.S.A. 77095
Tel: 281-821-3355
Fax: 281-821-0304

TORONTO:
90 Ironside Crescent,
Unit 12, Toronto,
Ontario, Canada M1X1M3
Tel: 416-291-3435
Fax: 416-291-0898

www.densona.com

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