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# PRODUCT DATA SHEET SP-8988

**DESCRIPTION:** **SP-8988** is a unique "Ceramic-Phenolic-Novolac-Epoxy" single coat only application, composite pipe coating. The highly cross-linked matrix makes **SP-8988** pipe coating ideal for high temperature service. It has cathodic disbonding resistance up to 180 C (356 F) with superior hot pull-off adhesion. **SP-8988** provides excellent barrier protection at high temperatures.

**ADVANTAGES:**
100% Solids – No VOCs.
Isocyanate free.
Excellent resistance to high temperature cathodic disbonding up to 180°C (356°F).
Excellent adhesion to grit blasted steel surfaces, Fusion Bond Epoxy (FBE), and Fiber Reinforced Plastic (FRP).
Excellent impact resistance.
Excellent abrasion and wear resistance.
Excellent chemical resistance.

**USES:**
Exterior coating for pipe, valves and fittings used in buried or immersed service.
Internal lining for pipe.
Slipbore & Horizontal Directional Drill and Abrasion Service.
Girthwelds.

**APPLICATION:** SP-8988 Brush Grade shall be applied to the specified Dry Film Thickness (DFT) in a single coat application only using a brush or roller and Graco Hydra-Cat high pressure airless spray equipment or approved equal for Spray Grade.
Spray Grade: Graco Hydra-Cat (Tip Size: .019 - .031)
Brush Grade: Brush or Roller
If additional DFT is required, coating must be cured to a hard dry condition. Before applying the second coat, the area must be blast roughened. Blast roughening shall not be attempted until the coating has dried to a hard dry condition in accordance with the SP-8988 Curing Table ( Appendix "A"). Profile depth shall be the same as previously stated.

**CLEANING MATERIALS:**
SP-100 Equipment Wash
SP-110 Tool Cleaner
SP-120 Internal Storage Lubricant

## SURFACE PREPARATION:

| | | |
|---|---|---|
| **Steel Substrate:** | **Cleanliness:** | Near White |
| | **Standards:** | NACE 2, Sa 2½ (Swedish Scale, ISO 8501-1)<br>SSPC SP-10 (Steel Structures Painting Council) |
| | **Profile:** | 62.5 microns minimum to 125 microns maximum<br>(2.5 mils to 5.0 mils) |
| **FBE:** | **Profile:** | 62.5 microns minimum to 125 microns maximum<br>(2.5 mils to 5.0 mils) |
| **Polyolefin:** | **Consult with SPC Representative.** | |

**MIXING RATIO:** Brush Grade or Spray Grade; By Volume: 4 Parts Base to 1 Part Hardener

## RECOMMENDED SPRAY PREHEAT TEMPERATURES IN DRUM / PAIL:

BASE: 75°C (167°F) to 90°C (194°F)
HARDENER: 15°C (59°F) to 30°C (86°F) (typically not heated)

Pre-heating of the base material is required to balance the viscosity of base and hardener.
In cases of extreme weather conditions the recommended temperatures may change, please consult your SPC representative.

## RECOMMENDED DRY FILM THICKNESS:

**Wet:** minimum 1.0 mm (40 mils)
**Dry:** minimum 1.0 mm (40 mils)
Depends upon application; consult with SPC Representative.

## HANDLING PROPERTIES:

Pot Life [100 gm (3.5 oz.) mass @ 25°C (77°F)] ..... 60 Minutes
Dry Time (ASTM D1640) [1.0 mm (40 mils) coating thickness @ 25°C (77°F)]
Touch Dry Time ..... 2.5 Hours
Dry Hard Time ..... 6.5 Hours
Recoat Window…… None. SP-8988 is a single coat system.

Substrate Temperature .. The acceptable substrate (metal surface) temperature range for the application of SP-8988 is 15°C (59°F) to 100°C (212°F). Preheating of the substrate is required if the surface to be coated is below 15°C (59°F). The substrate temperature must be a minimum of 3°C (5°F) above the dew point temperature before proceeding with the coating operation. Post-heating may also be required when over-coating polyolefin substrates.

Storage / Shelf Life ..... Store in a cool, dry, well-ventilated area at temperatures between 5 C (41 F) and 40 C (104 F). Keep the container lids sealed when not in use. The Shelf Life is a maximum of 24 months from the date of manufacture if the materials are in unopened containers.

| **LIQUID PROPERTIES:** | **BASE** | **HARDENER** |
|---|---|---|
| Appearance..... | Light Grey Viscous Liquid. | Amber Liquid. |
| Solids Content (%)..... | 100 | 100 |
| Specific Gravity (ASTM D1475)..... | 1.51 ± 0.03 | 1.00 ± 0.03 |
| Specific Gravity (ASTM D1475)..... | Base & Hardener Mixed: | 1.41 ± 0.03 |
| Coverage (Theoretical)..... | Base & Hardener Mixed: | 39.0 $m^2$/Litre/25 microns [1604 $ft^2$/U.S. Gallon/mil] |

## PHYSICAL / MECHANICAL / ELECTRICAL PROPERTIES:

| | |
|---|---|
| Adhesion to Steel: | |
| Dry Adhesion (Pull-off Strength) [MPa (psi)] (ASTM D4541-95-A4) (Self-Alignment Adhesion Tester, Type IV) [25 C (77°F)] | >38 (>5500) |
| Dry Adhesion (Pull-off Strength) [MPa (psi)] (ASTM D4541-95-A4) (Self-Alignment Adhesion Tester, Type IV) [150 C (302°F)] | >8.3 (>1200) |
| Wet Adhesion (Hot Water Soak) (CSA-Z245.20-10, Clause 12.14, 28 Days) [95°C (203°F)] | Rating #1 |
| Cathodic Disbonding Test [Average Radius (mm)] [CSA-Z245.20-10, Clause 12.8, System 1A, 28 Days @ 150°C (302°F)] | 2.33 |
| Cathodic Disbonding Test [Average Radius (mm)] [CSA-Z245.20-10, Clause 12.8, System 1A, 28 Days @ 180°C (356°F)] | 2.56 |
| Cathodic Disbonding Test [Average Radius (mm)] [CSA-Z245.20-10, Clause 12.8, System 1A, 60 Days @ 180°C (356°F)] | 6.36 |
| Flexibility (° PPD) (CSA-Z245.20-10, Clause 12.11) [25°C (77°F)] | 1.02 |
| Flexibility (° PPD) (CSA-Z245.20-10, Clause 12.11) [0°C (32°F)] | 1.01 |
| Flexibility (° PPD) (CSA-Z245.20-10, Clause 12.11) [-30°C (-22°F)] | 0.55 |
| Hardness (Shore D) (ASTM D2240-91) [25°C (77°F)] | 90 |
| Impact [Joules (in-lbf)] (CSA-Z245.20-10, Clause 12.12) [25°C (77°F)] | 6.0 (53.1) |
| Impact [Joules (in-lbf)] (CSA-Z245.20-10, Clause 12.12) [0°C (32°F)] | 4.0 (35.4) |
| Impact [Joules (in-lbf)] (CSA-Z245.20-10, Clause 12.12) [-30°C (-22°F) | 4.0 (35.4) |

**CHEMICAL RESISTANCE (ASTM G20) (90 days immersion @ ambient temperatures):**

| | |
|---|---|
| Ammonium Chloride, 10% solution……. | No change observed. |
| Ammonium Hydroxide, 10% solution ..... | No change observed. |
| Benzyl Alcohol..... | No change observed. |
| Bio Diesel..... | No change observed. |
| Calcium Chloride, 10% solution……... | No change observed. |
| Diesel..... | No change observed. |
| Ethanol ..... | No change observed. |
| Formaldehyde, 37% solution..... | No change observed. |
| Gasoline..... | No change observed. |
| Hydrocloric Acid, 5% solution..... | No change observed. |
| Jet Fuel..... | No change observed. |
| Mineral Oil ..... | No change observed. |
| MEK ..... | No change observed. |
| Methanol, 50% solution ..... | No change observed. |
| MIBK ..... | No change observed. |
| Monoethylene Glycol ..... | No change observed. |
| Naphtha ..... | No change observed. |
| Nitric Acid, 5% solution..... | No change observed. |
| Potassium Chloride, 10% solution……. | No change observed. |
| Sodium Carbonate, 10% solution..... | No change observed. |
| Sodium Chloride, 10% solution ..... | No change observed. |
| Sodium Silicate solution…… | No change observed. |
| Sodium Hydroxide, 10% solution ..... | No change observed. |
| Sulphuric Acid, 5% solution ..... | No change observed. |
| Totulene..... | No change observed. |
| Xylene ..... | No change observed. |
| Zinc Sulphate, 10% solution…….. | No change observed. |

**SAFETY:** Read the Material Safety Data Sheets before use.

**REFER TO SP-8988 CURING TABLE (APPENDIX "A").**

**EFFECTIVE DATE:** April 21, 2015 Rev. 4

# APPENDIX "A"

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## SP-8988 CURING TABLE

| SUBSTRATE TEMPERATURE | | DRY HARD CURING TIME | |
|---|---|---|---|
| °C | F | Brush Grade | Spray Grade |
| 90 | 194 | 7 Minutes | 5 Minutes |
| 80 | 176 | 11 Minutes | 9 Minutes |
| 70 | 158 | 16 Minutes | 13 Minutes |
| 60 | 140 | 35 Minutes | 28 Minutes |
| 50 | 122 | 1.25 Hours | 1 Hour |
| 40 | 104 | 3 Hours | 2.50 Hours |
| 30 | 86 | 5 Hours | 4 Hours |
| 20 | 68 | 11 Hours | 10 Hours |

Substrate: 12 mm (0.50 in.) Thick Steel Panels

Material Temperature:

Brush Grade: Base: 25°C (77°F), Hardener: 25°C (77°F)
Spray Grade: Base: 80°C (176°F), Hardener: 30°C (86°F)

Dry Film Thickness: 1.0 mm (40 mils) DFT as per ASTM D1640.

Note: The information above is to serve as a guide only. The test results were compiled under laboratory-controlled conditions. Field results may vary due to variable conditions such as radiant heat loss and the cooling effects of wind.

Effective Date: March 11, 2015 Rev. 4