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PRODUCT DATA SHEET

SP-9888[®] PIPE LINING

DESCRIPTION: SP-9888[®] Pipe Lining is based on the latest Zero VOC Novolac Technology. The product cures to a highly cross-linked coating with excellent chemical, solvent and water immersion resistance. SP 9888[®] Pipe Lining can be used as a lining for pipelines containing crude oil, diluted crude, various hydrocarbons, sewage, process water, acids, alkalis, and salt solutions.

ADVANTAGES:

- 100% Solids – No VOCs.
- High abrasion resistance.
- Excellent chemical, solvent and water resistance.
- High build, one-coat application.
- Excellent impact resistance.
- Good flexibility.
- Excellent resistance to high temperature cathodic disbonding up to 150°C (302°F)

USES:

- Internal lining for pipelines containing crude oil, diluted crude, various hydrocarbons, sewage, process water, acids, alkalis, and salt solutions.
- External coating for buried service.
- For internal lining of tanks please refer to SP-9888[®] Tank Lining.

RELATED MATERIALS:

- SP-9888[®] TF Thin Film
- SP-9888[®] Tank Lining

CLEANING MATERIALS:

- SP-100 Equipment Wash
- SP-110 Tool Cleaner
- SP-120 Internal Storage Lubricant

All information, recommendations, and test performance results herein were obtained in a controlled environment and SPC makes no claim that the data and tests accurately represent all environments and specific project specification requirements. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating. SPC products are sold with the understanding that the purchaser or user is solely responsible for determining their suitability for any purpose, and that the purchaser or user assumes all risks and liability associated with the use of the product. No guarantee, either expressed or implied, is made with respect thereto or with respect to the infringement of any patent. The information herein is not to be copied, used in evidence, released for publication, or public distribution without written permission from Specialty Polymer Coatings.



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SURFACE PREPARATION:

- **Cleanliness** : Near White
- **Standards** : NACE 2, Sa 2½ (Swedish Scale, ISO 8501-1)
SSPC SP-10 (Steel Structures Painting Council)
- **Profile** : 62.5 microns minimum to 125 microns maximum (2.5 mils to 5.0 mils)
The maximum profile depth on internal pipeline applications shall be reduced to 75 microns (3 mils.).

APPLICATION:

- **Spray Grade:** Plural Component Spray Equipment XP70 or Graco Hydra-Cat
- **Brush Grade:** Brush or Roller

MIXING RATIO: By Volume: 3 Parts Base to 1 Part Hardener.

HOSE BUNDLE: Heated hose bundle consisting of 3/8" ID base and 1/4" ID hardener line with 1/4" solvent flush line outside of the bundle. Glycol heat trace or equivalent capable of 80°C (176°F)
* Insulated whip hoses not recommended for glycol heat trace*

TIP SIZE: .019 – .031

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.

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RECOMMENDED FILM THICKNESS:

- 0.508 to 0.875 mm (20 to 35 mils) Internal Pipe Coating.
- Depends upon application; consult with your SPC Representative.

RE-COAT INTERVAL:

Base 80°C (176°F) and Hardener 20°C (68°F) Maximum: 6 Hours @ 15°C (59°F)
Maximum: 4 Hours @ 25°C (77°F)

- Re-Coat Interval may vary depending upon the substrate temperature, contact your SPC Rep.
- Re-coating is best achieved while initial coat is still tacky.
- Re-blasting of the surface is required if the maximum re-coat interval is exceeded. The minimum re-coat surface preparation interval is 6 hours @ 25°C (77°F). Profile depth shall be the same as previously stated. Small areas ≤19.35 sq. cm. (≤3 sq. in.) may be sanded using a medium grit (80-100) carborundum cloth. All dust from the sanding or blast roughening must be removed from the surface prior to the application of the coating.

HANDLING PROPERTIES:

Dry Time @ Base 80°C (176°F) and Hardener 20°C (68°F) (ASTM D1640) [0.75 mm (30 mils) coating thickness @ Substrate Temperature 25°C (77°F)]

Touch Dry Time 2.0 Hours
Dry Hard Time 5.5 Hours

Substrate Temperature... The acceptable substrate (metal surface) temperature range for the application of SP-9888[®] Pipe Lining 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. Internal pipe coating applications can be preheated to 90°C (194°F)

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.

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LIQUID PROPERTIES:

BASE

HARDENER

Appearance	Tan Liquid.	Amber Liquid.
Solids Content (%)	100	100
Specific Gravity (ASTM D1475)	1.46 ± 0.03	1.05 ± 0.03
Specific Gravity (ASTM D1475)	Base & Hardener Mixed: 1.36	
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)]	27 (4000)
Wet Adhesion (Hot Water Soak) (CSA-Z245.20-10, Clause 12.14, 28 Days) [Modified to 95°C (203°F)]	Rating #1
Wet Adhesion (Hot Water Soak) (CSA-Z245.20-10, Clause 12.14, 120 Days) [Modified to 75°C ± 3°C (167°F ± 5°F)]	Rating #1
Cathodic Disbonding Test [Average Radius (mm)] (CSA-Z245.20-10, Clause 12.8, System 1A, modified to 28 Days @ 120°C (248°F)]	6.0 ⁽¹⁾ ⁽²⁾
Flexibility (° PPD) (CSA-Z245.20-10, Clause 12.11) [21°C (70°F)]	1.50
Flexibility (° PPD) (CSA-Z245.20-10, Clause 12.11) [0°C (32°F)]	1.00
Flexibility (° PPD) (CSA-Z245.20-10, Clause 12.11) [-30°C (-22°F)]	0.75
Hardness (Shore D) (ASTM D2240-91) [25°C (77°F)]	84
Impact [Joules (ft-lbf)] (CSA-Z245.20-10, Clause 12.12) [21°C (70°F)]	5.00 (3.69)
Impact [Joules (ft-lbf)] (CSA-Z245.20-10, Clause 12.12) [0°C (32°F)]	3.50 (2.58)
Impact [Joules (ft-lbf)] (CSA-Z245.20-10, Clause 12.12) [-30°C (-22°F)]	2.50 (1.84)

- (1) Test modified using an autoclave
- (2) Test Pressure: 50 psi

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

Ammonium Chloride, 10% solution.....	No change observed.
Ammonium Hydroxide, 10% solution	No change observed.
Automatic Transmission Fluid.....	No change observed.
Benzyl Alcohol.....	No change observed.
Bio Diesel	No change observed.
Brake Fluid	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.
Hydrochloric 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.
Toluene.....	No change observed.
Xylene	No change observed.
Zinc Sulphate, 10% solution.....	No change observed.

SAFETY: Read the Material Safety Data Sheets before use.

EFFECTIVE DATE: October 25, 2016 Rev. 1

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SP-9888[®] PIPE LINING CURING TABLE

SUBSTRATE TEMPERATURE		DRY HARD CURING TIME
°C	°F	
90	194	3.5 Minutes
80	176	5 Minutes
70	158	8.5 Minutes
60	140	14.5 Minutes
50	122	35 Minutes
40	104	1.75 Hours
30	86	3.5 Hours
20	68	7 Hours
10	50	15.5 Hours

Substrate: 12 mm (0.5 in.) Thick Steel Panels

Material Temperature: Base: 80°C (176°F) Hardener: 20°C (68°F)

Dry Film Thickness: 0.63 mm (25 mils) 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: August 15, 2014