PRODUCT DATA SHEET

SP-2888® R.G.

DESCRIPTION: SP-2888® R.G. is a range of surface coatings based on “State of the Art” epoxy / urethane chemistry. The urethane polymer is pre-bonded to the epoxy resin rendering the coating “isocyanate free”. The synergistic effect of co-polymerizing epoxy and urethane produces a coating with the superior adhesion and permeability of epoxy along with the added toughness and abrasion resistance of urethane.

SP-2888® R.G. is available in Brush Grade and Spray Grade. SP-2888® R.G. is also available in Cartridges for coating repairs.

ADVANTAGES:

- 100% Solids – No VOCs.
- Isocyanate free.
- Excellent resistance to high temperature cathodic disbonding up to 80°C (176°F).
- Excellent adhesion to grit blasted steel surfaces, Fusion Bond Epoxy (FBE), and Fiber Reinforced Plastic (FRP).
- Excellent abrasion and impact resistance.

USES:

- Internal lining for pipelines.
- Exterior coating for pipelines in buried or immersed service.
- Coating of pipe, valves and fittings.
- Slip bore and directional drilling applications.
- Girth weld coatings.

APPLICATION:

- Spray Grade: Graco Hydra-Cat - Tip Size: .019 - .031
- Brush Grade: Brush or Roller
- Cartridge: Manual Dispenser

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)  
  SSPC SP-10 (Steel Structures Painting Council)
- **Profile:** 62.5 microns minimum to 125 microns maximum  
  (2.5 mils to 5.0 mils)

FBE:  
- **Profile:** 6.25 microns (2.5 mils) minimum

Polyolefin:  
- **Profile:** 100 microns (4.0 mils) minimum

MIXING RATIO:  
- Brush Grade or Spray Grade; By Volume: 3 Parts Base to 1 Part Hardener.
- Cartridge; By Volume: 2 Parts Base to 1 Part Hardener.

RECOMMENDED FILM THICKNESS:  
- **Standard Corrosion Protection:** 0.50 mm minimum to 1.25 mm maximum (20 mils to 50 mils).
- **Directional & Mechanical Protection:** 1.00 mm minimum to 1.78 mm maximum  
  (40 mils to 70 mils).
- Depends upon application; consult with SPC Representative.

RE-COAT INTERVAL:  

- @ 25°C (77°F) Maximum: 6 Hours
- @ 80°C (176°F) Maximum: 5 Minutes

- Sweep blasting of the surface is required if the maximum re-coat interval is exceeded.  
  Small areas ≤ 316 sq. cm. (≤ 49 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:

<table>
<thead>
<tr>
<th>Property</th>
<th>Brush Grade</th>
<th>Spray Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pot Life [100 gm (3.5 oz) mass @ 25°C (77°F)]</td>
<td>15 ± 5 Minutes</td>
<td>11 ± 3 Minutes</td>
</tr>
<tr>
<td>Dry Time (ASTM D1640) [0.50 mm (20 mils) coating thickness @ 25°C (77°F)]</td>
<td>75 Minutes</td>
<td>60 Minutes</td>
</tr>
<tr>
<td>Touch Dry Time</td>
<td>120 Minutes</td>
<td>75 Minutes</td>
</tr>
<tr>
<td>Tack Free Time</td>
<td>4.0 Hours</td>
<td>3.5 Hours</td>
</tr>
<tr>
<td>Dry Hard Time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ambient Temperature: Brush or Spray Grade: -30°C to 105°C (-22°F to 221°F)

Substrate Temperature: The acceptable substrate (metal surface) temperature range for the application of SP-2888® R.G. is 10°C (50°F) to 100°C (212°F). Preheating of the substrate is required if the surface to be coated is below 10°C (50°F). The substrate temperature must be a minimum of 3°C (5°F) above the dew point temperature before proceeding with the coating operation. Refer to the attached Curing Tables.

Storage / Shelf Life: Store in a cool, dry, well-ventilated area at temperatures between 5°C (41°F) and 40°C (104°F). Keep in a tightly sealed container when not in use. The Shelf Life of SP-2888® R.G. is a maximum of 24 months from the date of manufacture if the materials are in unopened containers.

LIQUID PROPERTIES:

<table>
<thead>
<tr>
<th>Property</th>
<th>BASE</th>
<th>HARDENER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White Viscous Liquid</td>
<td>Blue Liquid</td>
</tr>
<tr>
<td>Solids Content (%)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Specific Gravity (ASTM D1475)</td>
<td>1.55 ± 0.03 (Spray Grade)</td>
<td>1.03 ± 0.03 (Spray Grade)</td>
</tr>
<tr>
<td>Specific Gravity (ASTM D1475)</td>
<td>1.55 ± 0.03 (Brush Grade)</td>
<td>1.05 ± 0.03 (Brush Grade)</td>
</tr>
<tr>
<td>Specific Gravity (ASTM D1475)</td>
<td>Base &amp; Hardener Mixed:</td>
<td>1.42 ± 0.03 (Spray Grade)</td>
</tr>
<tr>
<td>Specific Gravity (ASTM D1475)</td>
<td>Base &amp; Hardener Mixed:</td>
<td>1.42 ± 0.03 (Brush Grade)</td>
</tr>
<tr>
<td>Coverage (Theoretical)</td>
<td>Base &amp; Hardener Mixed:</td>
<td>39.0 m²/Litre/25 microns (1604 ft²/ U.S. Gallon/mil)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PHYSICAL / MECHANICAL / ELECTRICAL PROPERTIES:

Taber Abrasion Resistance [Average Weight Loss (g)] (ASTM D4060-10)
(CS-17 Wheel, 1000 gram load with 5000 cycles)........................................... 0.3562

Adhesion to Steel:
  Dry Adhesion (Pull-off Strength) [MPa (psi)] (ASTM D4541-95-A4)
    (Self-Alignment Adhesion Tester, Type IV) [25°C (77°F)]............................... > 20 (> 3000)
  Wet Adhesion (Hot Water Soak) (CSA-Z245.20-10, Clause 12.14, 120 Days)
    [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, 28 Days @ 65°C (149°F)] .......... 6.50
  [CSA-Z245.20-10, Clause 12.8, System 1A, 28 Days, modified to 80°C (176°F)]... 7.00

Compressive Strength (psi) (ASTM D695) [25°C (77°F)]................................. 1.56 x 10^4

Dielectric Strength (volt/10^-3 in) (ASTM D149)............................................. 400

Dielectric Constant (60 cycles) (ASTM D150).................................................. 4.2

Elongation at Break (%) (ASTM D882 Method A)
  [25°C (77°F)] [DFT 0.50-0.75 mm (20-30 mils)]............................................ 4.20

Hardness (Shore D) (ASTM D2240-91) [25°C (77°F)]........................................ 85

Impact [Joules (ft-lbf)] (CSA-Z245.20-10, Clause 12.12) [-30°C ± 3°C (-22°F ± 5°F)]
  Spray Grade ................................................................................................. 3.0 (2.21)
  Brush Grade ................................................................................................. 3.0 (2.21)

Impact [Joules (ft-lbf)] (CSA-Z245.20-10, Clause 12.12) [25°C ± 3°C (77°F ± 5°F)]
  Spray Grade ................................................................................................. 5.0 (3.69)
  Brush Grade ................................................................................................. 5.0 (3.69)

Tensile Break Strength [MPa (psi)] (ASTM D882 Method A)
  [25°C (77°F)] [DFT 0.50-0.75 mm (20-30 mils)]............................................ 44.86 (6506.40)

Water Vapour Permeability (perm-in) (ASTM D1434)...................................... < 0.003

Water Absorption (%) (ASTM D570)................................................................. 0.1

Volume Resistivity (ohm-cm) (ASTM D257).................................................... 1.0 x 10^14
CHEMICAL RESISTANCE (ASTM G20) (90 days immersion @ ambient temperatures):

- Ammonium hydroxide, 10% solution ................................................................. No change observed.
- Diesel ................................................................................................................ No change observed.
- Ethanol, 50% solution ......................................................................................... No change observed.
- Gasoline ............................................................................................................. No change observed.
- Hydrochloric acid, 5% solution .......................................................................... No change observed.
- Mineral Oil ......................................................................................................... No change observed.
- Monoethylene glycol ......................................................................................... No change observed.
- Naptha ............................................................................................................. No change observed.
- Nitric acid, 5% solution .................................................................................... No change observed.
- Sodium carbonate, 10% solution ...................................................................... No change observed.
- Sodium chloride, 10% solution .......................................................................... No change observed.
- Sodium hydroxide, 10% solution ...................................................................... No change observed.
- Sulphuric acid, 5% solution ............................................................................... No change observed.
- Zinc sulphate, 10% solution ............................................................................. No change observed.

SAFETY: Read the Material Safety Data Sheets before use.

REFER TO COLOUR CHART AT END OF PRODUCT DATA SHEET.

EFFECTIVE DATE: May 18, 2012   Rev. 2
## BRUSH GRADE COATING KITS

### COLOUR CHART

Match Base & Hardener Based on Colour Coded Dots Below.
Mixing Ratio By Volume: 3 Parts Base to 1 Part Hardener.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>COLOUR</th>
<th>VOLUME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BASE</td>
</tr>
<tr>
<td>0.50 Litres</td>
<td>PINK</td>
<td>0.3750 Litres</td>
</tr>
<tr>
<td>0.75 Litres</td>
<td>FL GREEN</td>
<td>0.5625 Litres</td>
</tr>
<tr>
<td>0.90 Litres</td>
<td>FL YELLOW</td>
<td>0.6750 Litres</td>
</tr>
<tr>
<td>1.00 Litres</td>
<td>RED</td>
<td>0.7500 Litres</td>
</tr>
<tr>
<td>1.25 Litres</td>
<td>PURPLE</td>
<td>0.9375 Litres</td>
</tr>
<tr>
<td>1.50 Litres</td>
<td>YELLOW</td>
<td>1.1250 Litres</td>
</tr>
<tr>
<td>1.75 Litres</td>
<td>ORANGE</td>
<td>1.3125 Litres</td>
</tr>
<tr>
<td>2.00 Litres</td>
<td>BLACK</td>
<td>1.5000 Litres</td>
</tr>
<tr>
<td>2.25 Litres</td>
<td>BLUE</td>
<td>1.6875 Litres</td>
</tr>
<tr>
<td>2.50 Litres</td>
<td>GREEN</td>
<td>1.8750 Litres</td>
</tr>
<tr>
<td>2.75 Litres</td>
<td>WHITE</td>
<td>2.0600 Litres</td>
</tr>
</tbody>
</table>

Note: FL = Fluorescent