**Product Information**

**Product Description**

HI-SOLIDS POLYURETHANE is a two-component, aliphatic, acrylic polyurethane resin coating. It is designed for high performance protection with outstanding exterior gloss and color retention.

- Good/excellent resistance to corrosion and weathering
- Outstanding color and gloss retention
- Chemical resistant
- Part of a system tested for nuclear irradiation and decontamination, Level II
- Resists film attack by mildew (MR White only)
- Outstanding application properties
- Applications down to 20°F (-7°C)
- Outstanding application properties
- Resists film attack by mildew (MR White only)
- Marine & Offshore Applications
- Power Plants
- Acceptable for use in high performance architectural applications
- As topcoat for NEPCOAT System A
- Over FIRETEX hydrocarbon systems
- A gloss and color retentive heavy duty maintenance coating for use in "high visibility" areas
- External surfaces of steel tanks
- Chemical processing equipment
- Conveyors
- Handrails
- Refineries
- Clean rooms
- Handrails
- Marine & Offshore Applications
- Power Plants
- Acceptable for use in high performance architectural applications
- As topcoat for NEPCOAT System A
- Over FIRETEX hydrocarbon systems

**Product Characteristics**

- Finish: High Gloss or Semi-Gloss
- Color: Wide range of colors possible
- Volume Solids: 65% ± 2%, mixed, may vary by color
- Weight Solids: 77% ± 2%, mixed, may vary by color
- VOC (EPA Method 24): Unreduced: <340 g/L; 2.80 lb/gal mixed
- Mix Ratio: 4:1 by volume

**Recommended Spreading Rate per coat**

<table>
<thead>
<tr>
<th>Wet mils (microns)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5 (121)</td>
<td>8.0 (200)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dry mls (microns)</th>
<th>Coverage sq ft/gal (m²/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0 (75)</td>
<td>208 (5.1)</td>
</tr>
<tr>
<td>5.0 (125)</td>
<td>347 (8.5)</td>
</tr>
</tbody>
</table>

Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft

1040 (25.5)

**Drying Schedule @ 4.5 mils wet (112 microns):**

<table>
<thead>
<tr>
<th>@ 40°F/4.5°C</th>
<th>@ 77°F/25°C</th>
<th>@ 120°F/49°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5% RH</td>
<td>50% RH</td>
<td>100% RH</td>
</tr>
</tbody>
</table>

- To touch: 4 hours 2 hours 1 hour
- To handle: 16 hours 8 hours 5 hours
- To recoat:
  - minimum 24 hours 18 hours 10 hours
  - maximum 14 days 14 days 14 days
- To cure: 14 days 10 days 7 days
- Pot Life: 8 hours 4 hours 2 hours
- Sweat-in-Time: None required

If maximum recoat time is exceeded, abrade surface before recoating.

**Thermal Shock**

ASTM D2246, 15 cycles

Excellent

Meets the requirements of SSPC Paint No. 36, Level 3 for white and light colors. Dark colors may require a clear coat.

**Footnotes:**

1. Primer: Zinc Clad II Plus; Intermediate - Recoatable Epoxy Primer

---

**Recommended Uses**

- For use over prepared substrates in industrial environments
- Heavy duty interior and exterior structural coating
- A chemical and abrasion resistant equipment and machinery finish
- A gloss and color retentive heavy duty maintenance coating for use in "high visibility" areas
- Exterior surfaces of steel tanks
- Chemical processing equipment
- Conveyors
- Handrails

**Performance Characteristics**

**Substrate**: Steel

**Surface Preparation**: SSPC-SP6/NACE 3

**System Tested**: 1 ct. Recoatable Epoxy Primer @ 4.0 mils (100 microns) dft

1 ct. Hi-Solids Polyurethane Gloss @ 3.0 mils (75 microns) dft

*unless otherwise noted below

**Test Name** | **Test Method** | **Results**
---|---|---
Abrasion Resistance | ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load | 87.1 mg loss
Adhesion | ASTM D4541 | 1050 psi
Corrosion Resistance | ASTM D589, 21 cycles, 7056 hours | Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 for rusting
Direct Impact Resistance | ASTM D2794 | >28 in. lbs.
Dry Heat Resistance | ASTM D2485 | 200°F (93°C)
Flexibility | ASTM D522, 180° bend, 1/8" mandrel | Passes
Moisture Condensation Resistance | ASTM D4585, 100°F (38°C), 1000 hours | No rusting, blistering, or delamination
Pencil Hardness | ASTM D3363 | F
Salt Fog Resistance | ASTM B117, 9000 hours | Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 for rusting
Surface Burning | ASTM E84 | Flame Spread Index 0; Smoke Development Index 0 (at 3.5 mils or 88 microns)
Thermal Shock | ASTM D2246, 15 cycles | Excellent
**Revised:** March 27, 2019

**HI-SOLIDS POLYURETHANE**

**PRODUCT INFORMATION**  5.21

<table>
<thead>
<tr>
<th>RECOMMENDED SYSTEMS</th>
<th>Dry Film Thickness / ct.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steel:</strong> Epoxy Primer</td>
<td>Mils (Microns)</td>
</tr>
<tr>
<td>1 ct.</td>
<td>Recatoalbe Epoxy Primer</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Steel:</strong> Epoxy Primer</td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Dura-Plate 235</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Steel:</strong> Zinc Rich Primer</td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Zinc Clad II Plus</td>
</tr>
<tr>
<td>1 ct.</td>
<td>Macropoxy 646</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Steel:</strong> Epoxy Mastic Primer</td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Macropoxy 646</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Steel:</strong> Universal Primer</td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Kem Bond HS Metal</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Steel:</strong> NEPCOAT</td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Zinc Clad DOT</td>
</tr>
<tr>
<td>1 ct.</td>
<td>Steel Spec Epoxy Intermediate</td>
</tr>
<tr>
<td>1 ct.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Aluminum:</strong></td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>DTM Wash Primer</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Concrete:</strong></td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Kem Catl-Coat Epoxy HS Filler/Sealer</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>Galvanized Metal:</strong></td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Recatoalbe Epoxy Primer</td>
</tr>
<tr>
<td>1-2 cts.</td>
<td>Hi-Solids Polyurethane</td>
</tr>
<tr>
<td><strong>FIRETEX ONLY:</strong></td>
<td></td>
</tr>
<tr>
<td>Finish Coat for FIRETEX Hydrocarbon Systems:</td>
<td></td>
</tr>
<tr>
<td>1 ct.</td>
<td>Hi-Solids Polyurethane*</td>
</tr>
</tbody>
</table>

*Consult FIRETEX PFP Specialist for recommended dft range

The systems listed above are representative of the product’s use, other systems may be appropriate.

**DISCLAIMER**

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

**SURFACE PREPARATION**

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

* Iron & Steel: SSPC-SP6/NACE 3, 2 mil (50 micron) profile
* Aluminum: SSPC-SP1
* Galvanizing: SSPC-SP1
* Concrete & Masonry: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3
* Primer Required

**Surface Preparation Standards**

<table>
<thead>
<tr>
<th>Condition of Surface</th>
<th>ISO 8501-1</th>
<th>BS7079:A1</th>
<th>Swedish Std.</th>
<th>SSPC</th>
<th>NACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Metal</td>
<td>Sa 3</td>
<td>Sa 3</td>
<td>SSP 5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Near White Metal</td>
<td>Sa 2.5</td>
<td>Sa 2.5</td>
<td>SSP 10</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Commercial Blast</td>
<td>Sa 2</td>
<td>Sa 2</td>
<td>SSP 6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Brush-Off Blast</td>
<td>Sa 1</td>
<td>Sa 1</td>
<td>SSP 7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Hand Tool Cleaning</td>
<td>Rusted</td>
<td>D St 2</td>
<td>D St 2</td>
<td>SP 2</td>
<td>-</td>
</tr>
<tr>
<td>Powder Tool Cleaning</td>
<td>Pitted &amp; Rusted</td>
<td>C St 2</td>
<td>C St 2</td>
<td>SP 2</td>
<td>-</td>
</tr>
</tbody>
</table>

**TINTING**

Tint with Maxitoner Colorants only into Part S. Extra White tints at 200% tint strength. Ultradeep tints at 150% tint strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

**APPLICATION CONDITIONS**

Temperature: 20°F (-7°C) minimum
120°F (49°C) maximum (air, surface, and material)

Do not apply over surface ice at least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

**ORDERING INFORMATION**

Packaging:

- Part S: 1 gallon (3.78L) and 4 gallon (15.1L) kits
- Part T: quarts (0.94L) and gallons (3.78L)

Weight: 10.7 ± 0.2 lb/gal ; 1.28 Kg/L mixed, may vary with color

**SAFETY PRECAUTIONS**

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

**WARRANTY**

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

www.sherwin-williams.com/protective
Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Aluminum
Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. Primer required.

Galvanized Steel
Allow to weather a minimum of six months prior to coating. Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned. Primer required.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

Follow the standard methods listed below when applicable:
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up
Below 80°F (27°C)..............Reducer #69, R7K69 or R7K111
Above 80°F (27°C)..............Reducer #58 or R6K32

Airless Spray
Pressure: 2500 - 2800 psi
Hose: 3/8" ID
Tip: 013" - 017"
Filter: none
Reduction: As needed up to 10% by volume

Conventional Spray
Gun: Binks 95
Fluid Nozzle: 63 B
Atomization Pressure: 50 - 70 psi
Fluid Pressure: 20 - 25 psi
Reduction: As needed up to 15% by volume

Brush
Brush: Natural bristle
Reduction: As needed up to 15% by volume

Roller
Cover: 3/8" woven with solvent resistant core
Reduction: As needed up to 15% by volume

If specific application equipment is not listed above, equivalent equipment may be substituted.
**APPLICATION PROCEDURES**

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine 4 parts by volume of Part S with 1 part by volume of Part T. Thoroughly agitate the mixture with power agitation.

If reducer solvent is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

<table>
<thead>
<tr>
<th></th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet mils (microns)</td>
<td>4.5 (112)</td>
<td>8.0 (200)</td>
</tr>
<tr>
<td>Dry mils (microns)</td>
<td>3.0 (75)</td>
<td>5.0 (125)</td>
</tr>
<tr>
<td>~Coverage sq ft/gal (m²/L)</td>
<td>208 (5.1)</td>
<td>347 (8.5)</td>
</tr>
<tr>
<td>Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns</td>
<td>1040 (25.5)</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

**Drying Schedule @ 4.5 mils wet (112 microns):**

<table>
<thead>
<tr>
<th></th>
<th>@ 40°F/4.5°C</th>
<th>@ 77°F/25°C</th>
<th>@ 120°F/49°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>To touch:</td>
<td>4 hours</td>
<td>2 hours</td>
<td>1 hour</td>
</tr>
<tr>
<td>To handle:</td>
<td>16 hours</td>
<td>8 hours</td>
<td>5 hours</td>
</tr>
<tr>
<td>To recoat:</td>
<td>minimum</td>
<td>maximum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24 hours</td>
<td>18 hours</td>
<td>10 hours</td>
</tr>
<tr>
<td></td>
<td>14 days</td>
<td>14 days</td>
<td>14 days</td>
</tr>
<tr>
<td>To cure:</td>
<td>14 days</td>
<td>10 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Pot Life:</td>
<td>8 hours</td>
<td>4 hours</td>
<td>2 hours</td>
</tr>
<tr>
<td>Sweat-in-Time:</td>
<td>None required</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

**CLEAN UP INSTRUCTIONS**

Clean spills and spatters immediately with Reducer #58. Clean tools immediately after use with Reducer #58. Follow manufacturer's safety recommendations when using any solvent.

**DISCLAIMER**

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

**SUPPORT**

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

www.sherwin-williams.com/protective