HI-SOLIDS POLYURETHANE

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)

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
- Marine & Offshore Applications
- Refineries
- Clean rooms
- Conforms to AWWA D102 OCS #5 & #6.
- Acceptable for use in high performance architectural applications
- As topcoat for NEPCOAT System A
- Over FIRETEX hydrocarbon systems
- Overbrush or roll application may require multiple coats to achieve uniform film thickness and uniformity of appearance.

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

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test Method</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion Resistance</td>
<td>ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load</td>
<td>87.1 mg loss</td>
</tr>
<tr>
<td>Adhesion</td>
<td>ASTM D4541</td>
<td>1050 psi</td>
</tr>
<tr>
<td>Corrosion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weathering1</td>
<td>ASTM D5894, 21 cycles, 7056 hours</td>
<td>Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 for rusting</td>
</tr>
<tr>
<td>Direct Impact Resistance</td>
<td>ASTM D2794</td>
<td>32 lbs.</td>
</tr>
<tr>
<td>Dry Heat Resistance</td>
<td>ASTM D2485</td>
<td>200°F (93°C)</td>
</tr>
<tr>
<td>Flexibility</td>
<td>ASTM D522, 180° bend, 1/8” mandrel</td>
<td>Passes</td>
</tr>
<tr>
<td>Moisture Condensa-</td>
<td>ASTM D4585, 100°F (38°C), 1000 hours</td>
<td>No rusting, blistering, or delamination</td>
</tr>
<tr>
<td>tion Resistance</td>
<td>ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load</td>
<td>87.1 mg loss</td>
</tr>
<tr>
<td>Pencil Hardness</td>
<td>ASTM D3363</td>
<td>F</td>
</tr>
<tr>
<td>Salt Fog Resistance1</td>
<td>ASTM B117, 9000 hours</td>
<td>Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 for rusting</td>
</tr>
<tr>
<td>Surface Burning</td>
<td>ASTM E84</td>
<td>Flame Spread Index 0; Smoke Development Index 0 (at 3.5 mils or 88 microns)</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>ASTM D2246, 15 cycles</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Shelf Life: Part S - 36 months, unopened Part T - 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).

About 2°F (2°C), PMCC, mixed

Drying Schedule @ 4.5 mils (112.5 microns) wet:

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet mls (microns)</td>
<td>4.5 (112)</td>
</tr>
<tr>
<td>Dry mls (microns)</td>
<td>3.0 (75)</td>
</tr>
<tr>
<td>Theoretical coverage sq ft/gal (m²/L)</td>
<td>208 (5.1)</td>
</tr>
</tbody>
</table>

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

Adhesive: 1050 psi

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

Recommended Spreading Rate per coat:

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°F-7°C</td>
<td>40°F-4.5°C</td>
</tr>
<tr>
<td>50% RH</td>
<td>50% RH</td>
</tr>
</tbody>
</table>

To touch: 16 hours 4 hours 2 hours 1 hour
To handle: 14 days 16 hours 8 hours 5 hours
To recoat: minimum 32 hours 24 hours 18 hours 10 hours
maximum unlimited 14 days 14 days 14 days 14 days
To cure: 40 days 14 days 10 days 7 days

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

Contact W.S. Sherwin Coatings, 800-428-2616 for complete Product Information.

For use over prepared substrates in industrial environments.

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# HI-SOLIDS POLYURETHANE

## Recommended Systems

<table>
<thead>
<tr>
<th>Part</th>
<th>Gloss/Finish</th>
<th>B65-300</th>
<th>B65-350</th>
<th>B65WW305</th>
<th>B60V30</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Polyurethane</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>Polyurethane</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Surface Preparation

### Minimum recommended surface preparation:
- **Iron & Steel:** SSPC-SP6/NACE 3, 2 mil
- **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 BS709/A1</th>
<th>Swedish Std. SISS05900</th>
<th>SSPC NACE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Metal</td>
<td>Sa 3</td>
<td>Sa 3</td>
<td>SP 5</td>
</tr>
<tr>
<td>Near White Metal</td>
<td>Sa 2.5</td>
<td>Sa 2.5</td>
<td>SP 10</td>
</tr>
<tr>
<td>Commercial Blast</td>
<td>Sa 2</td>
<td>Sa 2</td>
<td>SP 6</td>
</tr>
<tr>
<td>Brush-Off Blast</td>
<td>Sa 1</td>
<td>Sa 1</td>
<td>SP 7</td>
</tr>
<tr>
<td>Hand Tool Cleaning</td>
<td>Pitted &amp; Rusted</td>
<td>C S 2</td>
<td>SP 2</td>
</tr>
<tr>
<td>Power Tool Cleaning</td>
<td>Pitted &amp; Rusted</td>
<td>C S 3</td>
<td>SP 3</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
- Do not apply over surface ice

**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 SDS 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.

### Disclaimer

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**CONTACT:**

www.sherwin-williams.com/protective
**Surface Preparations**

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. 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.

**Galvanized Steel**

Allow to weather a minimum of six months prior to coating. Remove all oil, grease, dirt, oxide and other 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 F1910. 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 D4260 Standard Practice for Etching 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.

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**Application Bulletin 5.21**

**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

**Application Equipment**

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)......Polane Reducer K69 or R7K111
  - Above 80°F (27°C)......Reducer #58 or R6K32

- **Airless Spray**
  - **Pressure:** 2500 - 2800 psi
  - **Hose:** 3/8" ID
  - **Tip:** 0.13" - 0.17"
  - **Filter:** none
  - **Reduction:** As needed up to 10% by volume with R7K111, or up to 6% by volume with Polane Reducer K69, Reducer #58, or R6K32 - reducing more than these levels may result in VOC exceeding 340 g/L

- **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*

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**Surface Preparation Standards**

<table>
<thead>
<tr>
<th>Condition of Surface</th>
<th>ISO 8501-1</th>
<th>BS7079-A1</th>
<th>SSPC NACE</th>
<th>Swedish Std.</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Metal</td>
<td>Sa 3</td>
<td>Sa 3</td>
<td>SP 6</td>
<td>1</td>
</tr>
<tr>
<td>Near White Metal</td>
<td>Sa 2.5</td>
<td>Sa 2.5</td>
<td>SP 10</td>
<td>2</td>
</tr>
<tr>
<td>Commercial Blast</td>
<td>Sa 2</td>
<td>Sa 2</td>
<td>SP 3</td>
<td>3</td>
</tr>
<tr>
<td>Brush-Off Blast</td>
<td>Sa 1.2</td>
<td>Sa 1.7</td>
<td>SP 7</td>
<td>4</td>
</tr>
<tr>
<td>Hand Tool Cleaning</td>
<td>DSt 1.2</td>
<td>DSt 1.2</td>
<td>SP 2</td>
<td>-</td>
</tr>
<tr>
<td>Power Tool Cleaning</td>
<td>DSt 1.3</td>
<td>DSt 1.3</td>
<td>SP 3</td>
<td>-</td>
</tr>
</tbody>
</table>

*As needed up to 15% by volume with R7K111, or up to 6% by volume with Polane Reducer K69, Reducer #58, or R6K32 - reducing more than these levels may result in VOC exceeding 340 g/L.

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

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**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>Recommended Spreading Rate per coat:</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 dtf</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 (112.5 microns) wet:**

<table>
<thead>
<tr>
<th>Drying Schedule</th>
<th>20°F-7°C</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>16 hours</td>
<td>4 hours</td>
<td>2 hours</td>
<td>1 hour</td>
</tr>
<tr>
<td>To handle:</td>
<td>14 days</td>
<td>16 hours</td>
<td>8 hours</td>
<td>5 hours</td>
</tr>
<tr>
<td>To recoat:</td>
<td>minimum: 32 hours</td>
<td>24 hours</td>
<td>18 hours</td>
<td>10 hours</td>
</tr>
<tr>
<td></td>
<td>maximum: unlimited</td>
<td>14 days</td>
<td>14 days</td>
<td>14 days</td>
</tr>
<tr>
<td>To cure:</td>
<td>40 days</td>
<td>14 days</td>
<td>10 days</td>
<td>7 days</td>
</tr>
<tr>
<td>Pot Life:</td>
<td>3 days</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>
<td></td>
</tr>
</tbody>
</table>

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.

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**APPLICATION BULLETIN 5.21**

**PERFORMANCE TIPS**

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #58.

Mixed coating is sensitive to water. Use water traps in all air lines. Moisture contact can reduce pot life and affect gloss and color.

Quick-Thane Urethane Accelerator is acceptable for use. See data page 5.97 for details.

E-Z Roll Urethane Defoamer is acceptable for use. See data page 5.99 for details.

R7K69 reducer is acceptable at temperature both above and below 80°F (28°C).

Refer to Product Information sheet for additional performance characteristics and properties.

**SAFETY PRECAUTIONS**

Refer to the SDS sheet before use.

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**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.