CARFLEX HS EPOXY is a 100% solids BPA free, polyamide-cured modified epoxy formulated for the lining of dry bulk rail hopper cars, storage tanks and grain elevators. It provides excellent corrosion protection, has excellent flexibility, and is impact and abrasion resistant. It has been designed as a one-coat or two-coat system.

- FDA approved for dry bulk (FDA Regulation 175.300)

**Product Characteristics**

<table>
<thead>
<tr>
<th>Finish:</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
<td>White and Blue</td>
</tr>
<tr>
<td>Volume Solids:</td>
<td>100%, mixed</td>
</tr>
<tr>
<td>Weight Solids:</td>
<td>100%, mixed</td>
</tr>
<tr>
<td>VOC (EPA Method 24):</td>
<td>&lt;100 g/L; 0.83 lb/gal, mixed</td>
</tr>
<tr>
<td>Mix Ratio:</td>
<td>2:1 by volume</td>
</tr>
</tbody>
</table>

**Recommended Spreading Rate per coat:**

| Wet mils (microns) | 8.0 (200) | 12.0 (300) |
| Dry mils (microns) | 8.0 (200) | 12.0 (300) |
| ~Coverage sq ft/gal (m²/L) | 134 (3.3) | 200 (4.9) |
| Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dt | 1604 (39.4) |

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

**Drying Schedule @ 10.0 mils wet @ 50% RH:**

- To touch: 4.5 hours
- To handle: 4-5 hours
- To recoat: minimum: 4 hours, maximum: 30 days

Cure schedule: 1 hour at ambient temperature followed by 2 hours at 120°F, then allow 24 hours at ambient cure before service. Failure to follow the stated cure schedule will result in reduced dry film performance characteristics.

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

Drying time is temperature, humidity, and film thickness dependent.

**Test Name** | **Test Method** | **Results**
--- | --- | ---
Abrasion Resistance | ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load | 107 mg loss
Adhesion | ASTM D4541 | >2500 psi
Direct Impact Resistance | ASTM D2794 | 28 in. lbs.
Elongation | ASTM D638, Type 4 Geometry | 48%
Flexibility | ASTM D522, 180° bend, 3/8" mandrel | Passes
Tensile Strength | ASTM D638 | 1000 psi

**Shelf Life:** 6 months, unopened
Store indoors at 50°F to 100°F.

**Clean Up:** Reducer 005

www.sherwin-williams.com/protective continued on back
CARFLEX® HS EPOXY

PRODUCT INFORMATION

**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.

**Minimum** recommended surface preparation:
- **Iron & Steel:**
  - Atmospheric: SSPC-SP6, 2 mil profile
  - Lining for rail hopper cars: SSPC-SP10, 2 mil profile
  - Lining for marine vessels: SSPC-SP10, 2 mil profile

**Surface Preparation Standards**

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

**Tinting**

Tinting not recommended.

**APPLICATION CONDITIONS**

- **Temperature:** 50°F minimum, 110°F maximum
- **Relative humidity:** 85% maximum
- Refer to product Application Bulletin for detailed application information.

**TEST APPLICATION ONLY INFORMATION**

- **Packaging:**
  - Part A: 5 gallons in a 5-gallon pail
  - Part B: 5 gallons in a 5-gallon pail
- **Weight:** 10.8 ± 0.2 lb/gal; mixed

**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.**

---

**RECOMMENDED SYSTEMS**

<table>
<thead>
<tr>
<th>Steel, atmospheric:</th>
<th>Dry Film Thickness /ct.</th>
<th>Mils</th>
<th>(Microns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 cts. Carflex HS Epoxy</td>
<td>8.0-12.0</td>
<td>(200-300)</td>
<td></td>
</tr>
<tr>
<td>or 1 ct. Carflex HS Epoxy</td>
<td>8.0-12.0</td>
<td>(200-300)</td>
<td></td>
</tr>
</tbody>
</table>

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.

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, Atmospheric Service:**
Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel within 8 hours or before flash rusting occurs.

**Iron & Steel, Lining for Rail Hopper Cars:**
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned.

---

**Surface Preparation Standards**

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

---

**Application Conditions**

Temperature: 50°F minimum, 110°F maximum
At least 5°F above dew point (air, surface and material)
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**
Not recommended

**Clean Up**
Reducer 005

**Plural Heated Spray**
Heated Plural Component, recommended 120°F
Extreme Mix 68:1 Graco
Pressure: 50 psi at 120°F
Hose: 3/8-1/2" ID
Tip: Number 417-519
Filter: 60 mesh
Reduction: none

**Brush**
Brush: Nylon/Polyester or Natural Bristle
Reduction: none

**Roller**
Cover: 3/8" woven with solvent resistant core
Reduction: none

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

If specific application equipment is not listed above, equivalent equipment may be substituted.
Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with power agitation. Make sure that the application equipment is operating properly with a 2 parts A to 1 part B ratio.

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

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>8.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Dry mils (microns)</td>
<td>8.0</td>
<td>12.0</td>
</tr>
<tr>
<td>~Coverage sq ft/gal (m²/L)</td>
<td>134</td>
<td>200</td>
</tr>
<tr>
<td>Theoretical coverage sq ft/gal (m²/L @ 1 mil / 25 microns dft)</td>
<td>1604</td>
<td>39.4</td>
</tr>
</tbody>
</table>

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

Drying Schedule @ 10.0 mils wet @ 50% RH:

To touch: 4.5 hours
To handle: 4-5 hours
To recoat: minimum: 4 hours maximum: 30 days

Cure schedule: 1 hr at ambient temperature followed by 2 hours at 120°F, then allow 24 hours at ambient cure before service. Failure to follow the stated cure schedule will result in reduced dry film performance characteristics.

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

Drying time is temperature, humidity, and film thickness dependent.

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

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

Clean spills and spatters immediately with Reducer 005. Clean tools immediately after use with Reducer 005.

Clean Up Instructions

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.

Disclaimer

Performance Tips

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 can be calculated using 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.

Do not apply the material beyond the 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 005.

Failure to follow the stated cure schedule will result in reduced dry film performance characteristics.

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

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.