HEAT-FLEX® HI-TEMP 1200
COATING UNDER INSULATION

PRODUCT DESCRIPTION

HEAT-FLEX® HI-TEMP 1200 is the next generation single-component inert multipolymeric matrix coating that outperforms alternatives in combating corrosion under insulation (CUI) and in high heat applications.

- Resists corrosion under insulation
- Resists stress corrosion cracking
- Application surface temperatures from ambient to 500°F (260°C)
- Operating surface temperatures cryogenic to 1200°F (649°C)
- Self priming, single component
- No maximum recoat time

PRODUCT CHARACTERISTICS

Finish: Low Sheen
Color: Gray and Dark Gray
Volume Solids: 57% ± 2% (calculated)
Weight Solids: 81% ± 2%
VOC (EPA Method 24): <375 g/L; 3.2 lb/gal

Recommended Spreading Rate per coat:

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet mils (microns)</td>
<td>8.0 (200)</td>
</tr>
<tr>
<td>Dry mils (microns)</td>
<td>5.0 (125)</td>
</tr>
</tbody>
</table>

Coverage sq ft/gal

- Coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft
- Theoretical coverage sq ft/gal (m²/L) 912 (22.3)

Drying Schedule @ 8.0 mils wet (200 microns):

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ 50°F/10°C</td>
<td>30 minutes</td>
<td>20 minutes</td>
</tr>
<tr>
<td>@ 77°F/25°C</td>
<td>90 minutes</td>
<td>60 minutes</td>
</tr>
<tr>
<td>@ 120°F/49°C</td>
<td>3 hours</td>
<td>2 hours</td>
</tr>
<tr>
<td></td>
<td>24 hours*</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

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

Performance Characteristics

Substrate: Carbon Steel / Stainless Steel, 304, 316
Complies with NACE SP0198 CUI System CS-6
Surface Preparation: SSPC-SP10
System Tested**: 2 cts. Heat-Flex Hi-Temp 1200 @ 5-6 mils (125-150 microns) dft/ct.
** cured at ambient temperature for 7 days

Test Name | Test Method | Results
--- | --- | ---
Abrasion Resistance | ASTM D968, Falling Sand | 16.4 L/mil*
Abrasion Resistance | ASTM D4060, Milligram Loss | 189
Adhesion | ASTM D6677 | Rating 10
Blocking Resistance | ASTM D4946 | Rating 10
Boiling Water | Dry 1000°F/537°C | No adhesion loss
 | Wet 210°F/99°C | 16 weeks, 80 cycles
Corrosion Under Insulation (Carbon Steel) | Dry 350°F/177°C | Rating 10 per ASTM D714 for blistering; Rating 10 per ASTM D610 for rusting
 | Wet 150°F/66°C | 12 weeks, 6 cycles (calcium silicate and mineral wool)
 | 8 cycles, 2,688 hours | Rating 10 per ASTM D714 for blistering; Rating 10 per ASTM D610 for rusting
Corrosion Weathering (Carbon Steel) | ASTM D5894 | Rating 10 per ASTM D714 for blistering; Rating 10 per ASTM D610 for rusting
 | 8 cycles, 2,688 hours | Rating 10 per ASTM D714 for blistering; Rating 10 per ASTM D610 for rusting
Direct Impact Resistance | ASTM D2794 | 80 in lb
Dry Heat Resistance | ASTM D2485 | 1200°F (649°C)
Exterior Durability (Carbon Steel) | 2 years at 45° South | Excellent
Flexibility | ASTM D522, 180° bend, 1/4” mandrel | Passes
Pencil Hardness | ASTM D3363 | 2H
Salt Fog Resistance (Carbon Steel) | ASTM B117, 1,848 hours | Rating 10 per ASTM D714 for blistering; Rating 8 per ASTM D610 for rusting

*Falling sand is very practical for indication of coating abrasion in the field.

*Please see Performance Tips section

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continued on back
**Recommended Systems**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Dry Film Thickness / ct.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mils (Microns)</td>
</tr>
<tr>
<td><strong>Carbon Steel or Stainless Steel - Atmospheric:</strong></td>
<td></td>
</tr>
<tr>
<td>Ambient or Hot Steel up to 500°F/260°C*</td>
<td>2 cts. Heat-Flex Hi-Temp 1200 5.0-6.0 (125-150)</td>
</tr>
<tr>
<td></td>
<td>or 1 ct. Heat-Flex Hi-Temp 1200 5.0-6.0 (125-150)</td>
</tr>
<tr>
<td></td>
<td>or 1 ct. Heat-Flex Hi-Temp 1000HA*** 2.0-2.5 (50-62)</td>
</tr>
<tr>
<td><strong>Carbon Steel or Stainless Steel - Insulated Service:</strong></td>
<td></td>
</tr>
<tr>
<td>Ambient or Hot Steel up to 500°F/260°C*</td>
<td>2 cts. Heat-Flex Hi-Temp 1200 5.0-6.0 (125-150)</td>
</tr>
<tr>
<td></td>
<td>or 1 ct. Heat-Flex Hi-Temp 1200 5.0-6.0 (125-150)</td>
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<td>or 1 ct. Heat-Flex Hi-Temp 1200 5.0-6.0 (125-150)</td>
</tr>
<tr>
<td></td>
<td>or 1 ct. Heat-Flex Hi-Temp 1000HA*** 1.5-2.0 (37-50)</td>
</tr>
</tbody>
</table>

*During application to hot steel, apply coating in several thin passes to allow solvent to escape and to prevent blistering. Allow at least 15-20 minutes between each coat.

***Apply mist coat and allow 10 minute flash off and follow with a full coat.

Do not exceed maximum recommended DFT. May affect adhesion.

**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: Preferred: SSPC-SP6, 1.5-2.5 mil (40-63 micron) profile
- Acceptable: SSPC-SP11, 1.0-2.5 mil (25-63 micron) profile
- Or SSPC-SP12/NACE No. 5 - WJ-2/L with existing surface profile
- Stainless Steel*: SSPC-SP1, Do not use chlorinated solvents for cleaning

*For optimum performance, abrasive blast per SSPC-SP16 to achieve a profile of 1-2 mils (25-50 microns) using a chloride-free, non-metallic abrasive

**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>SP 6</td>
<td>1.0</td>
<td>1</td>
</tr>
<tr>
<td>Near White Metal</td>
<td>Sa 2.5</td>
<td>SP 10</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Commercial Blast</td>
<td>Sa 2</td>
<td>SP 9</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Brush-Off Blast</td>
<td>Sa 1</td>
<td>SP 7</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Hand Tool Cleaning</td>
<td>Rusted</td>
<td>D St 2</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Pitted &amp; Rusted</td>
<td>C St 3</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Power Tool Cleaning</td>
<td>Rusted</td>
<td>D St 3</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Pitted &amp; Rusted</td>
<td>C St 3</td>
<td>3</td>
<td>-</td>
</tr>
</tbody>
</table>

Tinting

Do not tint.

**Application Conditions**

**Temperature:**

- Surface: 50°F (10°C) minimum, 500°F (260°C) maximum
- Air and material: 50°F (10°C) minimum, 120°F (49°C) maximum
- Relative humidity: At least 5°F (2.8°C) above dew point, 85% maximum

Refer to product Application Bulletin for detailed application information.

**Ordering Information**

- Packaging: 1 gallon (3.78L) in a gallon (3.78L) container and 3 gallons (11.34L) in a 5 gallon (18.9L) container
- Weight: 16.1 ± 0.3 lb/gal ; 1.93 Kg/L

**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.
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. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1.5-2.5 mils / 40-63 microns maximum). If SSPC-SP6/NACE 3 is not possible, Power Tool Cleaning to Bare Metal per SSPC-SP11 is also acceptable (1.0-2.5 mil / 25-63 micron profile maximum). Hand Tool Cleaning per SSPC SP 2 or Power Tool Cleaning per SSPC SP 3 are acceptable* preparation methods when SSPC SP 6 or SSPC SP 11 are not possible. SSPC-SP12 NACE No. 5 can also be utilized, though not the preferred method. All surfaces to be coated shall be cleaned in accordance with WJ-2/L standards. Pre-existing profile should be approximately 1.5 mils (37 microns). Remove all weld spatter and round all sharp edges. Coat any bare steel the same day as it is cleaned or before flash rusting occurs. On stainless steel, clean per SSPC-SP1. For optimum performance, abrasive blast per SSPC-SP16 to achieve a profile of 1-2 mils (25-50 microns) using a chloride-free, non-metallic abrasive Aluminum Oxide grit is also acceptable for use. Do not use chlorinated solvents for cleaning stainless steel. Product performance is relative to the surface preparation achieved.

*Where SSPC SP 2 or SP 3 are used the Dry Temperature Resistance is recommended to a maximum 1000°F, continuous and peak.

Surface Preparation Standards

<table>
<thead>
<tr>
<th>Condition of Surface</th>
<th>ISO 8501-1</th>
<th>BS7710:1995</th>
<th>SSPC</th>
<th>NACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Metal</td>
<td>Sa 3</td>
<td>Sa 2.5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Near White Metal</td>
<td>Sa 2</td>
<td>Sa 2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Commercial Blast</td>
<td>Sa 1</td>
<td>Sa 1</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Brush-Off Blast</td>
<td>St 2</td>
<td>St 2</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Hand Tool Cleaning</td>
<td>Rusted</td>
<td>Rusted</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Power Tool Cleaning</td>
<td>Pitted &amp; Rusted</td>
<td>Pitted &amp; Rusted</td>
<td>10</td>
<td>-</td>
</tr>
</tbody>
</table>

Temperature:
- surface 50°F (10°C) minimum, 500°F (260°C) maximum
- air and material 50°F (10°C) minimum, 120°F (49°C) maximum

At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

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.

Reduction .......................Not recommended*

Clean Up .........................Xylene, R2K4

Airless Spray
- Unit...............................30:1 Pump
- Pressure .........................2700 - 3000 psi
- Hose...............................3/8” ID
- Tip ...............................017-.019
- Filter ...............................60 mesh
- Reduction .........................Not recommended

Conventional Spray
- Gun.................................Graco 700N
- Fluid Tip ..........................045” - .055”
- Air Nozzle .........................20 cfm
- Atomization Pressure ....50 psi
- Fluid Pressure .....................20 - 30 psi
- Reduction .........................Not recommended

Brush
- Brush..............................China bristle
- Reduction .........................Not recommended

Roller
- Cover .............................1/2” woven with solvent resistant core,
- Reduction .........................Not recommended

*Please see Performance Tips section

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

Mixing Instructions: Mix paint thoroughly with low speed power agitation before use. Obtain a uniform consistency. Additional mixing during application may be necessary due to heavy consistency. Do not incorporate air.

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

<table>
<thead>
<tr>
<th>Wet mils (microns)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.0</td>
<td>200</td>
<td>10.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dry mils (microns)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>125</td>
<td>6.0</td>
</tr>
</tbody>
</table>

- Coverage sq ft/gal (m²/L) @ 1 mil / 25 microns
  - Minimum: 152 (3.7) 182 (4.5)
  - Maximum: 912 (22.3)

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

Drying Schedule @ 8.0 mils wet (200 microns):

<table>
<thead>
<tr>
<th>Temperature</th>
<th>To touch</th>
<th>To tack free</th>
<th>To recoat</th>
<th>To handle</th>
</tr>
</thead>
<tbody>
<tr>
<td>50°F/10°C</td>
<td>30 minutes</td>
<td>20 minutes</td>
<td>10 minutes</td>
<td>24 hours*</td>
</tr>
<tr>
<td>77°F/25°C</td>
<td>90 minutes</td>
<td>60 minutes</td>
<td>30 minutes</td>
<td>24 hours</td>
</tr>
<tr>
<td>120°F/49°C</td>
<td>3 hours</td>
<td>2 hours</td>
<td>1 hour</td>
<td>24 hours</td>
</tr>
</tbody>
</table>

*Higher film build affects cure speed and increases ship time at lower temperatures.

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 Xylene, R2K4. Clean tools immediately after use with mineral spirits. 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.

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