



Protective & Marine Coatings

HEAT-FLEX® 1200N COATING UNDER INSULATION

B59A229

Revised: June 16, 2015

PRODUCT INFORMATION

7.10N

PRODUCT DESCRIPTION

HEAT-FLEX® 1200N is the nuclear industries first surface tolerant high temperature coating for CSL I applications. It is the next generation single-component inert multipolymeric matrix coating that outperforms alternatives in combating corrosion under insulation (CUI) and in high heat applications. This product meets specific design requirements for nuclear safety related qualification.* This product is quality manufactured to the requirements of 10 CFR 50 Appendix B and ANSI/ASME NQA-1.

- 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)
- Heat curing not required to cure and provide corrosion resistance
- Self priming, single component
- No maximum recoat time

*DBA Qualification for LOCA is NRC license specific to the facility

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:

	Minimum	Maximum
Wet mils (microns)	8.0 (200)	10.0 (250)
Dry mils (microns)	5.0 (125)	6.0 (150)
~Coverage sq ft/gal (m²/L)	152 (3.7)	182 (4.5)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	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):

	@ 50°F/10°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	30 minutes	20 minutes	10 minutes
To handle:	90 minutes	60 minutes	30 minutes
To recoat:	3 hours	2 hours	1 hour
To ship:	24 hours*	24 hours	24 hours

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

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

Shelf Life:	12 months, unopened at 77°F (25°C) Store indoors at 40°F (4.5°C) to 100°F (31°C)
Flash Point:	87°F (31°C) SETA
Reducer:	Not normally recommended*
Clean Up:	Xylene, R2K4

*Please see Performance Tips section

RECOMMENDED USES

- Direct to steel or stainless steel
- As a coating under insulation
- Cyclic service up to 1200°F (649°C)
- Acceptable for use on cryogenic equipment
- For use over properly prepared steel surfaces, either insulated or uninsulated:
 - Power Plants
 - Refineries
 - Chemical Facilities
 - Offshore/Marine
 - Pulp & Paper
 - Nuclear Power Plants
 - DOE Nuclear Fuel Facilities
 - DOE Nuclear Weapons Facilities
 - Nuclear Fabrication shops

PERFORMANCE CHARACTERISTICS

Substrate: Carbon Steel */ Stainless Steel, 304, 316

Surface Preparation: SSPC-SP10

System Tested:

2 cts. Heat-Flex 1200N @ 5-6 mils (125-150 microns) dft/ct.

Test Name	Test Method	Results
Abrasion Resistance	ASTM D968, Falling Sand	16.4 L/mil**
Abrasion Resistance	ASTM D4060, Mil-ligram Loss	189
Adhesion	ASTM D6677	Rating 10
Blocking Resistance	ASTM D4946	Rating 10
Boiling Water	Dry 1000°F/537°C Wet 210°F/99°C 16 weeks, 80 cycles	No adhesion loss
Corrosion Under Insulation (Carbon Steel)	Dry 350°F/177°C Wet 150°F/66°C 12 weeks, 6 cycles (calcium silicate and mineral wool)	Rating 10 per ASTM D714 for blistering; Rating 10 per ASTM D610 for rusting
Corrosion Weathering (Carbon Steel)	ASTM D5894, 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)	1 year at 45° South	In-Process
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
Simulated DBA*	ASTM D9311 Report IM.1492.12N	Pass

System (DBA)* Heat-Flex 1200N SSPC SP11 Carbon Steel**

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

***Heat-Flex 1200N Manufactured under NQA-1 10CFR 50B requirements.



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APPLICATION BULLETIN

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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.

ReductionNot recommended*

Clean UpXylene, 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, small areas only
Reduction.....Not recommended

Roller

Cover.....1/2" woven with solvent resistant
core, small areas only
Reduction.....Not recommended

*Please see Performance Tips section

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

RECOMMENDED SYSTEMS

Dry Film Thickness / ct.
Mils (Microns)

Carbon Steel or Stainless Steel - Atmospheric: Ambient or Hot Steel up to 500°F/260°C* :

2 cts. Heat-Flex 1200N 5.0-6.0 (125-150)

Carbon Steel or Stainless Steel - Insulated Service: Ambient or Hot Steel up to 500°F/260°C* :

2 cts. Heat-Flex 1200N 5.0-6.0 (125-150)

*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.

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

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.

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, 1.5-2.5 mil
 (40-63 micron) profile
 Or SSPC-SP11, 1.0-2.5 mil
 (25-63 micron) profile

Stainless Steel: SSPC-SP1, Do not use chlorinated
 solvents for cleaning

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

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

MIXING PROCEDURES

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:

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.

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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