Protective & Marine Coatings
PRODUCT DATA SHEET

EPO-PHEN™ FF
TANK LINING AND HIGH TEMP COATING

Revised: May 9, 2022

PRODUCT DESCRIPTION

EPO-PHEN FF is a flake filled epoxy phenolic novolac lining for protection from corrosion under insulation.

INTENDED USES

External lining for steel and stainless steel tanks, pipes and process vessels under thermal insulation at elevated temperatures and/or cryogenic service. May be used as an API 652 compliant thin film lining for immersion service in crude/water service at elevated temperatures.

PRODUCT DATA

Finish: Semi-Gloss

Colors: Gray

Volume Solids: 70% ± 2%, mixed

VOC (EPA Method 24): <250 g/L; 2.08 lb/gal

Mix Ratio: 4:1 by volume

Typical Thickness:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**10.0** (250)	**13.0** (325)
Dry mils (microns)	**7.0** (175)	**9.0*** (225)
~Coverage sq ft/gal (m^2/L)	**125** (3.0)	**160** (3.9)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1120** (27.4)	

See Recommended Systems on Page 2

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

Flash Point: 89°F (32°C), Seta Flash, mixed

Reducer / Clean Up[1]: VOC Restricted Areas (<250 g/L): use Reducer #111

Weight: 12.45 ± 0.2 lb/gal ; 1.5 Kg/L, mixed

[1]Other VOC areas (<340 g/L): use Reducer #111 or Reducer #15. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

Average Drying Times @ 12 mils wet (300 microns):

With standard hardener	50°F (13°C)	77°F (25°C) *50% RH*	100°F (38°C)
Touch:	6 hours	3 hours	1 hour
Handle:	18 hours	8 hours	2 hours
Recoat:			
minimum:	48 hours	16 hours	6 hours
maximum:	30 days	30 days	30 days
Cure to service:	21 days	7 days	3 days
Heat cure:	8 hours @ ambient, then 16 hours @ 140°F (60°C)		
Pot Life*:	4 hours	2 hours	30 minutes
Sweat-in-time:	none required		

With low temp hardener	35°F (1.6°C)	77°F (25°C) *50% RH*
Touch:	24 hours	4 hours
Handle:	48 hours	6 hours
Recoat:		
minimum:	24 hours	24 hours
maximum:	30 days	30 days
Cure to service:	5 days	1 day
Pot Life*:	4 hours	1.5 hours
Sweat-in-time:	none required	

**Reduced 10% with Reducer #15. Pot life is dependent upon temperature and mass*

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

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: Immersion: SSPC-SP10/NACE 2/ISO8501-1:2007 Sa 2.5, 2-3 mil (50-75 micron) profile
Atmospheric: SSPC-SP11, SSPC-SP2 or ISO8501-1:2007 St 2

Concrete & Masonry: Immersion: SSPC-SP13/NACE 6 - 4.3.1 or 4.3.2, or ICRI No. 310.2R CSP 2-3

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APPLICATION

Airless Spray**
Unit.....45:1 pump, minimum
Pressure.....3600 psi minimum (248 bar)
Hose.....3/8"-1/2" ID (9.5-12.7 mm)
Gun .....Graco XTR 7
Tip .....019"-.021" (0.48-0.53 mm), Graco XHD RAC
Filter.....30 mesh

Conventional Spray**
Gun .....Binks 95
Tip and Needle.....66/65
Air Nozzle.....63PH-1
Atomization Pressure.....65-75 psi (4.5-5.1 bar)
Fluid Pressure.....15-20 psi (1.0-1.4 bar)

Brush** .....For stripe coating and repair only
Brush.....Nylon/Polyester or Natural Bristle

Roller.....For stripe coating and repair only
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.

RECOMMENDED SYSTEMS

Dry Film Thickness / ct.		Mils	(Microns)
Steel/Stainless Steel, high temperature resistance up to 450°F (232°C)			
1 Ct.	Epo-Phen FF	7.0-9.0*	(175-225)*
OR			
2 Cts.	Epo-Phen FF	3.5-4.5*	(87-112)*
Steel/Stainless Steel, high temperature resistance up to 300°F (149°C)			
2 Cts.	Epo-Phen FF	5.0-8.0	(125-200)
Carbon Steel or Stainless Steel, immersion/tank lining			
2 Cts.	Epo-Phen FF	5.0-8.0	(125-200)

*Do not apply over 12.5 mils (313 microns) total dft for service above 300°F (149°C). For all other services, Epo-Phen FF may be applied up to 16 mils (400 microns) total dft, depending on application conditions. Consult your Sherwin-Williams representative for additional information.

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

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.

APPLICATION CONDITIONS

Temperature (air, surface, material):
Standard Hardener: 50°F (10°C) minimum, 120°F (49°C) maximum. Substrate up to 300°F (149°C).
Low Temp Hardener: 35°F (1.7°C) minimum, 77°F (25°C) maximum
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

APPROVALS

- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities*

* Nuclear qualifications are NRC license specific to the facility

ADDITIONAL NOTES

Do not tint.

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

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15.

Do not mix previously catalyzed material with new.

Not recommended for potable water immersion.

When spraying above 120°F (49°C), reduce material 10% with Reducer #100. Spray apply only. Product will produce an orange peel appearance when applied at elevated temperatures.

HEALTH AND SAFETY

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

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 Sheet.