Protective & Marine Coatings

NOVA-PLATE™ UHS
EPOXY TANK LINING

Revised 03/2019 Issue 3

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Nova-Plate UHS is an ultra high solids epoxy novolac amine engineered specifically for immersion service in ballast tanks, oil tanks, refined fuel storage tanks, and for well deck overheads. The high build, edge retentive properties of Nova-Plate UHS provide superior protection compared to conventional epoxies.

- Airless Spray or Plural Component Application
- Low VOC
- Low odour
- High flash point, > 93°C (200°F)
- Fast cure hardener available

PRODUCT CHARACTERISTICS

Finish:	Gloss
Colour:	Light Grey, White
Volume Solids:	98% ± 2%, mixed
Weight Solids:	98% ± 2%, mixed
VOC (EPA Method 24):	<100 g/L; (0.83 lb/gal)
Mix Ratio:	4:1 by volume

Recommended Spreading Rate per coat:

	1 coat over Primer		2 coats direct (values are per coat)	
	Min	**Max**	**Min**	**Max**
Wet microns mils	**250** 10.0	**400** 16.0	**250** 10.0	**300** 12.0
Dry microns mils	**250** 10.0	**400** 16.0	**250** 10.0	**300** 12.0
Total microns mils	**250** 10.0	**400** 16.0	**500** 20.0	**600** 24.0
Coverage m²/L sq ft/gal	**4** (163)	**2.5** (102)	**4** (163)	**3.3** (135)

Drying Schedule @ 200 microns wet (8.0 mils):

With Fast Cure Hardener	@ 13°C (55°F)	@ 25°C(77°F) *50% RH*	@ 38°C/(100°F)
To touch:	9 hours	3 hours	1¼ hours
To handle:	24 hours	12 hours	4¼ hours
To recoat:			
minimum:	24 hours	12 hours	4¼ hours
maximum:	21 days	21 days	14 days
Cure to service:	7 days	5 days	5 days
Pot Life:	50 minutes	25 minutes	10 minutes
InductionTime:		None required	

With Standard Hardener	@ 13°C (55°F)	@ 25°C(77°F) *50% RH*	@ 38°C/(100°F)
To touch:	15 hours	4 hours	2 hours
To handle:	36 hours	14 hours	6 hours
To recoat:			
minimum:	36 hours	14 hours	6 hours
maximum:	21 days	21 days	14 days
Cure to service:	7 days	5 days	5 days

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

Pot Life:	90 minutes	40 minutes	20 minutes

Note: Pot life will be shorter with higher temperatures and larger volume of material.

InductionTime: None required

Shelf Life:	24 months Store indoors at 4.5°C (40°F) to 38°C (100°F)
Flash Point:	110°C (230°F), PMCC,mixed
Thinner:	Not recommended
Clean up:	No 13

RECOMMENDED USES

For use over prepared steel or concrete in industrial and marine exposures such as:

- Meets MIL-PRF-23236, Type VII, Class 5, 7, 13, 19, Grade C
- Ballast tank interiors
- Well deck overheads
- Oil storage tank interiors
- Refined fuel storage tank interiors
- Acceptable for use under thermal insulation
- CHT Tanks and containment areas
- Suitable for use in the Mining & Minerals Industry
- Norsok system 7C approval

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Complies with NACE SP0198 CUI System CS-4

Surface Preparation*: BS EN ISO 8501-1:2007 Sa2½, SSPC-SP10, NACE2

System Tested*:

1 ct. Nova-Plate UHS Primer @ 150-300 microns (6.0-12.0 mils) dft
1 ct. Nova-Plate UHS @ 150-300 microns (6.0-12.0 mils) dft
*Wtih Fast Cure Hardener

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060-14, CS17 wheel, 1000 cycles, 1 kg load	55 mg loss
Adhesion	ASTM D4541-17; ASTM D3359	1380 psi, minimum (ASTM D4541); 5A (ASTM D3359)
Cathodic Disbondment	CSA Z245 .20-06 @ 18°C (65°F)	Passes
CHT Immersion Testing	MIL-PRF-23236, 26 cycles	Passes
Corrosion Weathering	ASTM, D5894-16, 2016 hours, 6 cycles	Rating 10 per ASTM D610 for rusing; Rating 10 per ASTM D714 for blistering
Direct Impact Resistance	ASTM D2794 - 93(2010)	40 in. lb.
Dry Heat Resistance	ASTM D2485-18	232°C (450°F) Discolours
Pencil Hardness	ASTM D3363 - 05(2011)E2	H

*1 ct. @ 550 microns (22 mils) dft; Report # 09-0847

IMMERSION (Ambient temperature):

• Ballast Tank mix	Recommended
• CHT Tanks	Recommended
• Crude oil	Recommended
• Diesel fuel	Recommended
• Fresh water	Recommended
• Fuel oil	Recommended
• MTBE	Recommended
• Refined petroleum products	Recommended
• Sea water	Recommended
• Hi-Aromatic petrol	Recommended
• Ether/Fuel blends	Recommended
• Methanol	Recommended**

**standard hardener only.

Epoxy coatings may darken or yellow after application and curing.

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PRODUCT INFORMATION

RECOMMENDED SYSTEMS

	Dry Film Thickness / ct. Microns (Mils)
Steel:	
1 ct. Nova-Plate UHS Primer	150-300 (6.0-12.0)
1 ct. Nova-Plate UHS Epoxy	250-400 (10.0-16.0)
Steel:	
2 cts. Nova-Plate UHS Epoxy	250-300 (10.0-12.0)
Steel:	
1 ct. Nova-Plate UHS Epoxy	450-550 (18.0-22.0)
Concrete/Masonry:	
1 ct. Corobond 100 Epoxy Primer/Sealer apply primer to achieve uniformhiding, appearance, and complete wetting of the concrete surface. Coating will be partially absorbed into the concrete. Roll out any puddles.	100-150 (4.0-6.0)
2 cts. Nova-Plate UHS Epoxy	250-300 (10.0-12.0)

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.

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:
Atmospheric: BS EN ISO 8501-1:2007 Sa2, SSPC-SP6/NACE 3, 50-75 micron (2-3 mil) profile optimal
Immersion: BS EN ISO 8501-1:2007 Sa2½, SSPC-SP10/NACE 2, 50-75 micron (2-3 mil) profile optimal
Concrete & Masonry:
Atmospheric: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 2-3
Immersion: SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2R, CSP 2-3

Surface Preparation Standards

	Condition of Surface	BS EN ISO 8501-1:2007	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

Do not tint

APPLICATION CONDITIONS

Temperature:
Air & surface: 10°C (50°F) minimum, 43°C (110°F) maximum, At least 3°C above dew point

Material should be 25°C (77°F) to 38°C (100°F) for optimal application

Relative Humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:
Base: 12ltr in 20ltr pail, 3ltr in 5ltr can

Hardener: 3ltr in 5ltr pail, 0.75ltr in 1ltr can

Weight: 1.34 Kg/L ±0.04, (10.8±0.3 lbs/gal) mixed

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.

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.

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APPLICATION BULLETIN

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)
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per BS EN ISO 8501-1:2007 Sa2, SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per BS EN ISO 8501-1:2007 Sa2½, SSPC-SP10/ NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimumsurface profile (50-75 microns / 2-3 mils). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Iron & Steel (immersion service)
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 Sa2½. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (50-75 microns / 2-3 mils). Remove all weld spatter. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 2-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 24°C(75°F). 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 FT910. Primer required.

Follow the standard methods listed below when applicable:
ASTM D4258 -05(2017)Standard Practice for Cleaning Concrete.
ASTM D4259-18 Standard Practice for Abrading Concrete.
ASTM D4260-05(2017) Standard Practice for Etching Concrete.
ASTM F1869-16a 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.

Concrete, Immersion Service:
For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2R, CSP 2-3.

Surface Preparation Standards

	Condition of Surface	BS EN ISO 8501-1:2007	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:
Air & surface: 10°C (50°F) minimum, 43°C (110°F) maximum
At least 3°C above dew point

Material should be 25°C (77°F) to 38°C (100°F) for optimal application

Relative Humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

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 cleanser. Any thinning must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Thinner .....Not recommended

Clean Up .....No 13

Plural Component Airless Spray

Unit..... WIWA Model 333, or equal
Pressure..... 4000 psi
Hose..... 3/8" ID
Tip .....017" - .019"
Fluid temperature
required at tip .....32°C - 35°C (90°F - 95°F)

Airless Spray
Unit..... 68:1 Pump, (minimum)
Pressure..... 6000 psi
Hose..... 3/8" ID
Tip .....019" - .021"
Filter .....30 mesh

In order to avoid blockage of airless spray equipment and hose, flush equipment at least once every hour and before periods of extended downtime with Cleanser No 13.

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

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

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APPLICATION BULLETIN

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mixing Instructions: Mix contents of each component thoroughly using low speed power agitation. Make certain no pigment remains on the bottom or the sides of the can. Then combine four parts by volume of Base with one part by volume of hardener. Thoroughly agitate the mixture with power agitation.

To ensure that no unmixed material remains on the sides or bottom of the cans after mixing, visually observe the container by pouring the material into a separate container.

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

Recommended Spreading Rate per coat:

	1 coat over Primer		2 coats direct (values are per coat)	
	Min	Max	Min	Max
Wet microns mils	**250** 10.0	**400** 16.0	**250** 10.0	**300** 12.0
Dry microns mils	**250** 10.0	**400** 16.0	**250** 10.0	**300** 12.0
Total microns mils	**250** 10.0	**400** 16.0	**500** 20.0	**600** 24.0
Coverage m²/L sq ft/gal	**6.6** 160	**2.4** 98	**3.9** 160	**3.2** 130

Drying Schedule @ 200 microns wet (8.0 mils):

With Fast Cure Hardener	@ 13°C (55°F)	@ 25°C(77°F) *50% RH*	@ 38°C/(100°F)
To touch:	9 hours	3 hours	1¼ hours
To handle:	24 hours	12 hours	4¼ hours
To recoat:			
minimum:	24 hours	12 hours	4¼ hours
maximum:	21 days	21 days	14 days
Cure to service:	7 days	5 days	5 days
Pot Life:	50 minutes	25 minutes	10 minutes
InductionTime:		None required	

With Standard Hardener	@ 13°C (55°F)	@ 25°C(77°F) *50% RH*	@ 38°C/(100°F)
To touch:	15 hours	4 hours	2 hours
To handle:	36 hours	14 hours	6 hours
To recoat:			
minimum:	36 hours	14 hours	6 hours
maximum:	21 days	21 days	14 days
Cure to service:	7 days	5 days	5 days

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

Pot Life:	90 minutes	40 minutes	20 minutes

Note: Pot life will be shorter with higher temperatures and larger volume of material.

InductionTime: None required

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 Cleanser No. 13. Clean tools immediately after use with Cleanser No. 13. Follow manufactuers safety recommendations when using any solvent.

PERFORMANCE TIPS

Repair of Pitted Tank Bottoms
Extensive, deep pitting:
Options:
Option 1...Apply a full wet coat, by spray application, of Nova-Plate UHS Primer. If necessary, follow with rubber squeegee to work material into and fill the pitted areas. After recommended drying time, apply a full coat of Nova-Plate UHS at recommended film thickness.

Option 2 ...Weld new steel plates, or use puddle welds, as required to repair pitted areas. Coat areas as recommended.

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-coat 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.

No thinning of material is recommended as this can affect film build, appearance, and adhesion.

Do not mix previously mixed material with new.

Do not apply the material beyond recommended pot life.

In order to avoide blockage of airless spray equipment and hose, flush equipment at least once every hour and before periods of extended downtime with Cleanser No 13.

For Immersion Service: (if required) Holiday test in accordance with ASTM D5162-15 for steel.

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

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