



# Protective & Marine Coatings



Certified to NSF/ANSI 61

# DURA-PLATE® 235 PW MULTI-PURPOSE EPOXY

PART A B67X-235  
PART B B67VX235

SERIES COLORS HARDENER

Revised: May 21, 2014

## PRODUCT INFORMATION

4.68

### PRODUCT DESCRIPTION

**Dura-Plate 235 PW Multi-Purpose Epoxy** is a modified epoxy phenalkamine, certified by NSF to Standard 61 as a tank lining for potable water storage tank.

- Self-priming
- Low temperature application
- Cures at temperatures as low as 0°F (-18°C)
- Approved as a primer under MIL-PRF-23236D, Type V, Class 7, Grade C
- Outstanding application properties

### PRODUCT CHARACTERISTICS

<b>Finish:</b>	Semi-Gloss
<b>Color:</b>	Mill White, Red Oxide and Buff
<b>Volume Solids:</b>	68% ± 2%, mixed
<b>Weight Solids:</b>	79% ± 2%, mixed
<b>VOC (EPA Method 24):</b>	Unreduced: <280g/L; 2.33 lb/gal Reduced 10%: <327 g/L; 2.72 lb/gal
<b>Mix Ratio:</b>	4:1 by volume

### Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min.	Max.	Min.	Max.
<b>Wet mils (microns)</b>	<b>6.0</b> 150	<b>12.0</b> 300	<b>4.4</b> 110	<b>8.8</b> 220
<b>Dry mils (microns)</b>	<b>4.0</b> 100	<b>8.0*</b> 200*	<b>3.0</b> 75	<b>6.0*</b> 150*
<b>~Coverage sq ft/gal (m<sup>2</sup>/L)</b>	<b>136</b> 3.3	<b>272</b> 6.6	<b>181</b> 4.4	<b>362</b> 8.8
<b>Theoretical coverage sq ft/gal (m<sup>2</sup>/L) @ 1 mil/25 micron dft</b>	<b>1088 (26.6)</b>			

*NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.  
\*See Recommended Systems on reverse side*

### Drying Schedule @ 6.0 mils wet (150 microns):

	@ 0°F/-18°C	@ 40°F/4.5°C	@ 77°F/25°C*	@ 120°F/49°C
<b>To touch:</b>	18 hours	3.5 hours	2 hours	20 minutes
<b>To handle:</b>	36 hours	14 hours	3.5 hours	40 minutes
<b>To recoat:</b>				
<b>minimum:</b>	36 hours	14 hours	3.5 hours	40 minutes
<b>maximum:</b>	6 months	6 months	6 months	6 months
<b>Cure to service:</b>	30 days	28 days	7 days	3 days

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

<b>Pot Life:</b>	16 hours	8 hours	4 hours	1 hour
<b>Sweat-in-time:</b>	1 hour	30 minutes	15 minutes	5 minutes

\*For Potable Water Service, allow a minimum cure to service for given temperature. Sterilize and rinse per AWWA C652.

<b>Shelf Life:</b>	36 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
<b>Flash Point:</b>	116°F (47°C) PMCC, mixed
<b>Reducer/Clean Up:</b>	Reducer R7K104

### RECOMMENDED USES

**Immersion Service - Potable water:** Meets NSF Standard 61 for use in potable water storage for composition of coatings used in potable water.

For potable water use per NSF Std 61, dry times and minimum recoat times

- 3.5 hour recoat, 7 day final cure (25°C): 1500 gallon tank, 36" pipe

Recommended uses include:

- Fabrication and new construction
- Acceptable for use with cathodic protection systems
- Conforms to AWWA D102 ICS #1, #2, and #5, and OCS #5.\*\*\*

\*\*\* Refer to respective systems

### PERFORMANCE CHARACTERISTICS

**Substrate\*:** Steel

**Surface Preparation\*:** SSPC-SP10/NACE 2

**System Tested\*:**

2 cts. Dura-Plate 235 PW @ 5.0 mils (125 microns) dft/ct

\*unless otherwise noted below

Test Name	Test Method	Results
<b>Abrasion Resistance</b>	ASTM D4060 CS17 wheel, 1000 cycles, 1 kg load	65 mg loss
<b>Adhesion</b>	ASTM D4541	850 psi
<b>Direct Impact Resistance</b>	ASTM D2794	10 in lb
<b>Dry Heat Resistance</b>	ASTM D2485	250°F (121°C)
<b>Immersion<sup>1</sup></b>	5 year potable water	Rating 10 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
<b>Immersion</b>	18 months fresh and salt water	Passes, no rusting, blistering, or loss of adhesion
<b>Moisture Condensation Resistance</b>	ASTM D4585, 100°F (38°C), 2000 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
<b>Pencil Hardness</b>	ASTM D3363	H

### IMMERSION (Ambient temperature)

- Salt Water ..... Recommended
- Fresh Water ..... Recommended
- Potable Water ..... Recommended

Epoxy coatings may darken or yellow following application and curing.

### Footnotes:

<sup>1</sup> Galvapak/2 cts. Dura-Plate 235 NSF



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### RECOMMENDED SYSTEMS

	Dry Film Thickness / ct.	
	Mils	(Microns)
<b>Immersion,*Steel:</b>		
<b>*AWWA D102: Inside Coating System No. 1</b>		
minimum AWWA	8.0	(200)
1 ct. Dura-Plate 235 PW	3.0	(75)
1 ct. Dura-Plate 235 PW	5.0	(125)
<b>*AWWA D102: Inside Coating System No. 2</b>		
minimum AWWA	12.0	(300)
1 ct. Dura-Plate 235 PW	3.0	(75)
1 ct. Dura-Plate 235 PW	4.0	(100)
1 ct. Dura-Plate 235 PW	5.0	(125)
<b>*AWWA D102: Inside Coating System No. 5</b>		
minimum AWWA	10.0	(250)
1 ct. Corothane I – Galvapac NSF	2.0	(50)
1 ct. Dura-Plate 235 PW	4.0	(100)
1 ct. Dura-Plate 235 PW	4.0	(100)
<b>Atmospheric, Steel:</b>		
<b>*AWWA D102: Outside Coating System No. 5</b>		
minimum AWWA	6.0	(150)
1 ct. Dura-Plate 235 PW	2.0	(50)
1 ct. Dura-Plate 235 PW	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)
<b>*AWWA D102: Outside Coating System No. 6</b>		
minimum AWWA	6.0	(150)
1 ct. Corothane I – Galvapac NSF	2.0	(50)
1 ct. Dura-Plate 235 PW	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)
<b>Concrete/ Masonry Smooth</b>		
2cts. Dura-Plate 235 PW	4.0-8.0	(100-200)

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.

### 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:** SSPC-SP2/3 or SSPC-SP12/NACE No. 5, WJ-4  
**Immersion:** SSPC-SP10, 2 mil (50 micron) profile or SSPC-SP-12/NACE No. 5, WJ-2/NV-2

**Concrete & Masonry:**  
**Atmospheric:** SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3  
**Immersion:** SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2R, CSP 1-3

**Galvanized, atmospheric:** SSPC-SP1

#### Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	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	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted	D St 3	SP 3	-

### TINTING

Do not tint.

### APPLICATION CONDITIONS

**Temperature:** 0°F (-18°C) minimum, 120°F (49°C) maximum (air and surface)  
 At least 5°F (2.8°C) above dew point  
 Material should be at least 40°F (4.5°C) for optimal performance.

**Relative humidity:** 85% maximum

Refer to product Application Bulletin for detailed application information.

### ORDERING INFORMATION

**Packaging:**  
**Part A:** 1 gallon (3.78L) and 4 gallons (15.1L) in a 5 gallon (18.9L) container  
**Part B:** 1 quart (0.94L) and 1 gallon (3.78L)

**Weight:** 11.3 ± 0.2 lb/gal ; 1.35 Kg/L, mixed may vary with color

### 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.



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## APPLICATION BULLETIN

4.68

### 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.

#### Carbon Steel, Immersion Service:

Clean and degrease the surface prior to abrasive blasting per SSPC-SP 1 Solvent Cleaning. Methods described in SSPC-SP 1 include solvents, alkali, detergent/water, emulsions, and steam. The surface shall be abrasive blasted to SSPC-SP10/NACE No. 2 Near-White Blast Cleaning with a 2-3 mil (50-75 micron) profile. The anchor pattern shall be sharp with no evidence of a polished surface. The finished surface shall be free of all visible oil, grease, dust, dirt, mill scale, rust, coating, oxides, corrosion products, and other foreign matter with no more than 5% staining. After blasting, all dust and loose residue should be removed from the surface by acceptable means. Coat steel the same day as it is prepared and prior to the formation of rust.

#### 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.

#### Ductile Iron, Immersion Service:

Refer to National Association of Pipe Fabricators Surface Preparations Standard NAPP 500-03 as follows:

- NAPP 500-03-01 "Solvent Cleaning"
- NAPP 500-03-02 "Hand Tool Cleaning"
- NAPP 500-03-03 "Power Tool Cleaning"
- NAPP 500-03-04 "Abrasive Blast Cleaning of Ductile Iron Pipe".

#### Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). 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.

#### Follow the standard methods listed below when applicable:

- ASTM D4258 Standard Practice for Cleaning Concrete.
- ASTM D4259 Standard Practice for Abrading Concrete.
- ASTM D4260 Standard Practice for Etching Concrete.
- ASTM F1869 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 1-3.

#### Previously Painted Surfaces:

If in sound condition, clean the surface of all foreign material. Scarify the surface to create the desired surface profile. Apply coatings on a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary.

#### Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Spa 3	Spa 3	SP 5	1
Near White Metal	Spa 2.5	Spa 2.5	SP 10	2
Commercial Blast	Spa 1	Spa 1	SP 6	4
Brush-Off Blast	Spa 1	Spa 1	SP 6	4
Hand Tool Cleaning	CSt 2	CSt 2	SP 2	-
Pitted & Rusted	DSt 2	DSt 2	SP 2	-
Rusted	CSt 3	CSt 3	SP 3	-
Power Tool Cleaning	DSt 3	DSt 3	SP 3	-

### APPLICATION CONDITIONS

Temperature: 0°F (-18°C) minimum, 120°F (49°C) maximum (air and surface)  
At least 5°F (2.8°C) above dew point  
Material should be at least 40°F (4.5°C) for optimal performance.

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/Clean Up .....Reducer R7K104

#### Airless Spray

Unit.....30:1 Pump  
Pressure.....2400 - 2800 psi  
Hose.....1/4" - 3/8" ID  
Tip .....0.015" - .019"  
Filter .....60 mesh  
Reduction.....As needed, up to 10% by volume

#### Brush

Brush.....Natural Bristle  
Reduction.....Not recommended

#### Roller

Cover .....3/8" woven with solvent resistant core  
Reduction.....Not recommended

#### Recommended Spreading Rate per coat:

	Standard	AWWA
Wet mils (microns):	6.0 (150)-12.0 (300)	4.4 (110)- 8.8 (220)
Dry mils (microns):	4.0 (100) - 8.0* (200)	3.0 (75) - 6.0* (150)
Coverage:	136 (3.3) - 272 (6.6)	181 (4.4) - 362 (8.8)
	sq ft/gal (m <sup>2</sup> /L)	

\*See recommended systems on Product Information page.

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



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4.68

### APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly using low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine 4 parts by volume of Part A with 1 part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.

If reducer solvent is used, add only after both components have been thoroughly mixed, after sweat-in.

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

#### Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min.	Max.	Min.	Max.
Wet mils (microns)	6.0	150	12.0	300
Dry mils (microns)	4.0	100	8.0*	200*
Coverage sq ft/gal (m <sup>2</sup> /L)	136	3.3	272	6.6
Theoretical coverage sq ft/gal (m <sup>2</sup> /L) @ 1 mil/25 micron dft	1088 (26.6)			

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

\*See Recommended Systems on reverse side

#### Drying Schedule @ 6.0 mils wet (150 microns):

	@ 0°F/-18°C	@ 40°F/4.5°C	@ 77°F/25°C* 50% RH	@ 120°F/49°C
To touch:	18 hours	3.5 hours	2 hours	20 minutes
To handle:	36 hours	14 hours	3.5 hours	40 minutes
To recoat:				
<b>minimum:</b>	36 hours	14 hours	3.5 hours	40 minutes
<b>maximum:</b>	6 months	6 months	6 months	6 months
Cure to service:	30 days	28 days	7 days	3 days

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

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

**Pot Life:** 16 hours 8 hours 4 hours 1 hour

**Sweat-in-time:** 1 hour 30 minutes 15 minutes 5 minutes

\*For Potable Water Service, allow a minimum cure to service for given temperature. Sterilize and rinse per AWWA C652.

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 Reducer R7K104. Clean tools immediately after use with Reducer R7K104. Follow manufacturer's safety recommendations when using any solvent.

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### PERFORMANCE TIPS

Stripe coat 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 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.

Excessive reduction of material can affect film build, appearance, and adhesion, and NSF 61 approval.

Insufficient ventilation, incomplete mixing, miscatalyzation, and external heaters may cause premature yellowing.

Excessive film build, poor ventilation, and cool temperatures may cause solvent entrapment and premature coating failure.

**For Immersion Service:** (if required) Holiday test in accordance with ASTM D5162 for steel, or ASTM D4787 for concrete.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R7K104.

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

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### WARRANTY

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