DURA-PLATE® 235
MULTI-PURPOSE EPOXY

PRODUCT INFORMATION

4.67

PART A B67-235
PART B B67V235
PART B B67V240

PRODUCT DESCRIPTION

DURA-PLATE 235 Multi-Purpose Epoxy is a modified epoxy phenalkamine, formulated specifically for immersion and atmospheric service in marine and industrial environments. Dura-Plate 235 provides exceptional performance in corrosive environment, and can be applied at temperatures as low as 0°F (-18°C).

- Self-priming
- Low temperature application, 0°F (-18°C)
- Surface tolerant - damp surfaces
- Provides salt water and fresh water immersion resistance
- Approved as a primer per MIL-PRF-23236, Type V, Class 7, Grade C (when mixed with Standard Hardener only)
- Outstanding application properties
- LV Hardener (B67V240) is formulated for CARB and OTC II VOC-restricted areas

PRODUCT CHARACTERISTICS

Finish: Semi-Gloss
Color: Wide range of colors available
Volume Solids: 68% ± 2%, mixed
Weight Solids: 78% ± 2%, mixed

VOC (EPA Method 24):
with Standard Hardener (EPA, OTC I):
- Unreduced: <280 g/L; 2.33 lb/gal
- Reduced 10%, R7K104: <340 g/L; 2.83 lb/gal
- Reduced 10%, R7K111: <280 g/L; 2.33 lb/gal
with LV Hardener (CARB, OTC II):
- Unreduced: <250 g/L; 2.08 lb/gal
- Reduced 10%, R7K111: <250 g/L; 2.08 lb/gal

Mix Ratio: 4:1 by volume

Recommended Spreading Rate per coat:
- Minimum
- Maximum
Wet mils (microns): 6.0 (150) 12.0 (300)
Dry mils (microns): 4.0* (100) 8.0* (200)
- Coverage sq ft/gal (m²/L): 136 (3.3) 272 (6.6)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft: 1088 (26.6)

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

Drying Schedule @ 6.0 mils wet (150 microns):
With B67V235
- 0°F/-18°C 40°F/4.5°C 77°F/25°C 120°F/49°C
- 50% RH
To touch: 18 hours 3.5 hours 2 hours 20 minutes
To handle: 36 hours 12 hours 3.5 hours 40 minutes
To recoat:
- minimum: 36 hours 12 hours 3.5 hours 40 minutes
- maximum: 6 months 6 months 6 months 6 months
Cure to service: 30 days 14 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

Recommended Uses

For use over prepared steel and masonry surfaces.
- Salt water and fresh water immersion resistance
- Ballast tanks, offshore and marine structures
- Bilges and wet void areas
- Above- and below-water hull areas
- Decks and superstructures
- Water and waste water tanks
- Acceptable for use with cathodic protection systems.
- Dura-Plate 235 Black meets or exceeds the performance criteria of C-200, SSPC Paint 16; and MIL-P-23236B(SH), Type I or IV, Class 2
- Suitable for use in USDA inspected facilities
- Conforms to MPI # 101 (when mixed with Standard Hardener only)

Performance Characteristics

Abrasion Resistance: ASTM D4060 CS17 wheel, 1000 cycles, 1 kg load
Adhesion: ASTM D4541 850 psi
Impact Resistance: ASTM D2794 10 lb (with Std. hardener) 25 lb (with LV hardener)
Dry Heat Resistance: ASTM D2485 250°F (121°C)
Moisture Condensation Resistance: ASTM D4585, 100°F (38°C), 2000 hours Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Pencil Hardness: ASTM D3363 H

Revised: February 20, 2020

Protective & Marine Coatings

DURA-PLATE 235 Multi-Purpose Epoxy

Part A B67-235
Part B B67V235 Standard Hardener (<340 g/L VOC, Mixed)
Part B B67V240 LV Hardener (<250 g/L VOC, Mixed)
## DURA-PLATE® 235
### MULTI-PURPOSE EPOXY

### PRODUCT INFORMATION

#### RECOMMENDED SYSTEMS

<table>
<thead>
<tr>
<th>System Type</th>
<th>Material</th>
<th>Dry Film Thickness</th>
<th>Application Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel, immersion or atmospheric service</td>
<td>Dura-Plate 235</td>
<td>4.0-8.0 (100-200)</td>
<td>0°F (-18°C) minimum, 120°F (49°C) maximum (air and surface)</td>
</tr>
<tr>
<td>Steel, immersion service</td>
<td>Dura-Plate 235</td>
<td>4.0-8.0 (100-200)</td>
<td><em>At least 5°F (2.8°C) above dew point</em></td>
</tr>
<tr>
<td>Steel, immersion service</td>
<td>Dura-Plate 235</td>
<td>8.0-16.0 (200-400)</td>
<td>Material should be at least 40°F (4.5°C) for optimal performance.</td>
</tr>
<tr>
<td>Steel, atmospheric service</td>
<td>Dura-Plate 235</td>
<td>4.0-8.0 (100-200)</td>
<td><em>At least 5°F (2.8°C) above dew point</em></td>
</tr>
<tr>
<td>Steel, atmospheric service</td>
<td>Dura-Plate 235</td>
<td>5.0-10.0 (125-250)</td>
<td>Relative humidity: 85% maximum</td>
</tr>
<tr>
<td>Steel, atmospheric service</td>
<td>Zinc-Clad II Plus</td>
<td>3.0-5.0 (75-125)</td>
<td>Temperature: 0°F (-18°C) minimum, 120°F (49°C) maximum (air and surface)</td>
</tr>
<tr>
<td>Steel, atmospheric service</td>
<td>Dura-Plate 235</td>
<td>4.0-8.0 (100-200)</td>
<td><em>At least 5°F (2.8°C) above dew point</em></td>
</tr>
<tr>
<td>Steel, atmospheric service</td>
<td>Zinc-Clad IV</td>
<td>3.0-5.0 (75-125)</td>
<td><em>Acceptable over damp surfaces when under 5°F (2.8°C), however not over ice.</em></td>
</tr>
<tr>
<td>Steel, atmospheric service</td>
<td>Dura-Plate 235</td>
<td>4.0-8.0 (100-200)</td>
<td>Relative humidity: 85% maximum</td>
</tr>
<tr>
<td>Steel, atmospheric service</td>
<td>Dura-Plate 235</td>
<td>4.0-8.0 (100-200)</td>
<td>Material should be at least 40°F (4.5°C) for optimal performance.</td>
</tr>
<tr>
<td>Concrete/Masonry, immersion service</td>
<td>Kem Cat-Coat HS Epoxy Filler/Sealer</td>
<td>2.0-4.0 (50-100)</td>
<td><em>At least 5°F (2.8°C) above dew point</em></td>
</tr>
<tr>
<td>Galvanized, atmospheric service</td>
<td>Dura-Plate 235</td>
<td>2.0-4.0 (50-100)</td>
<td>Relative humidity: 85% maximum</td>
</tr>
</tbody>
</table>

### 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:**
  - Atmospheric: SSPC-SP10, 2 mil (50 micron) profile or SSPC-SP12/NACE 5, WJ-2
  - Immersion: SSPC-SP10, 2 mil (50 micron) profile or SSPC-SP12/NACE 5, WJ-2

### TINTING

Tint Part A with Maxitoners only. Mill White tints at 150%. Ultradeep Base tints at 100%. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

### 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.

### 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.

### 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.

www.sherwin-williams.com/protective
APPLICATION BULLETIN

DURA-PLATE® 235
MULTI-PURPOSE EPOXY

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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, 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 or SSPC-SP12/NACE 5. For SSPC-SP10/NACE 2, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). For SSPC-SP12/NACE No. 5, all surfaces to be coated shall be cleaned in accordance with WJ-2. Pre-existing profile should be approximately 2 mils (50 microns). Light rust bloom is allowed. Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned.

Iron & Steel, Atmospheric Service:
Minimum surface preparation is Hand Tool Clean per SSPC-SP2 or SSPC-SP12/NACE 5. For surfaces prepared by SSPC-SP2, first 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). For surfaces prepared by SSPC-SP12/NACE No. 5, all surfaces shall be cleaned in accordance with WJ-4. Pre-existing profile should be approximately 2 mils (50 microns). Prime any bare steel the same day as it is cleaned.

Galvanized Steel
Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Clean per SSPC-SP2, prime the area the same day as it is cleaned.

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.

Concrete, Immersion Service:
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 Ablarding Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP13/NACE 6 Surface Preparation of Concrete. ICRI No. 310.2R Concrete Surface Preparation.

Surface Preparation Standards

<table>
<thead>
<tr>
<th>Condition of Surface</th>
<th>ISO 8501-1</th>
<th>Swedish Std. SIS05900</th>
<th>SSPC NACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Metal</td>
<td>Sa 3</td>
<td>Sa 3</td>
<td>SP 5</td>
</tr>
<tr>
<td>Near White Metal</td>
<td>Sa 2.5</td>
<td>Sa 2.5</td>
<td>SP 10</td>
</tr>
<tr>
<td>Commercial Blast</td>
<td>Sa 2</td>
<td>Sa 2</td>
<td>SP 6</td>
</tr>
<tr>
<td>Brush-Off Blast</td>
<td>Sa 1</td>
<td>Sa 1</td>
<td>SP 7</td>
</tr>
<tr>
<td>Hand Tool Cleaning</td>
<td>Rusted</td>
<td>C St 2</td>
<td>SP 2</td>
</tr>
<tr>
<td></td>
<td>Pitted &amp; Rusted</td>
<td>C St 3</td>
<td>SP 3</td>
</tr>
<tr>
<td>Power Tool Cleaning</td>
<td>Rusted</td>
<td>C St 3</td>
<td>SP 3</td>
</tr>
<tr>
<td></td>
<td>Pitted &amp; Rusted</td>
<td>D St 3</td>
<td>SP 3</td>
</tr>
</tbody>
</table>

Application Equipment

The following is a guide. Changes in pressures and tip sizes may need to be made 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
EPA, OTC I: Reducer #104 (R7K104)
CARB, OTC II: Reducer #111 (R7K111)

Airless Spray
Gun.........................DeVilbiss MBC-510
Fluid Tip ..................E
Air Nozzle...................704
Atomization Pressure.....60-65 psi
Fluid Pressure..............5-15 psi
Reduction..................As needed, up to 10% by volume

Conventional Spray
Gun.........................DeVilbiss MBC-510
Fluid Tip ..................E
Air Nozzle...................704
Atomization Pressure.....60-65 psi
Fluid Pressure..............5-15 psi
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

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

<table>
<thead>
<tr>
<th>Spreading Rate</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet mils (microns)</td>
<td>6.0 (150)</td>
<td>12.0 (300)</td>
</tr>
<tr>
<td>Dry mils (microns)</td>
<td>4.0* (100)</td>
<td>8.0* (200)</td>
</tr>
<tr>
<td>Coverage sq ft/gal (m²/L)</td>
<td>136 (3.3)</td>
<td>272 (6.6)</td>
</tr>
</tbody>
</table>

*See Performance Tips section

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

Drying Schedule @ 6.0 mils wet (150 microns):

<table>
<thead>
<tr>
<th>With B67V235</th>
<th>With B67V240</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ 0°F/-18°C</td>
<td>@ 0°F/-18°C</td>
</tr>
<tr>
<td>@ 40°F/4.5°C</td>
<td>@ 40°F/4.5°C</td>
</tr>
<tr>
<td>@ 77°F/25°C</td>
<td>@ 77°F/25°C</td>
</tr>
<tr>
<td>@ 120°F/49°C</td>
<td>@ 120°F/49°C</td>
</tr>
<tr>
<td>@ 50% RH</td>
<td>@ 50% RH</td>
</tr>
</tbody>
</table>

To touch: 18 hours 18 hours 4 hours 4 hours 2 hours 2 hours
To handle: 36 hours 72 hours 20 hours 20 hours 4 hours 4 hours 2 hours 2 hours
To recoat: minimum: 36 hours 72 hours 12 hours 20 hours 4 hours 4 hours 2 hours 2 hours
maximum: 6 months 6 months 6 months 6 months 6 months 6 months
Cure to service: 30 days 30 days 14 days 14 days 7 days 7 days 3 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 16 hours 8 hours 8 hours 4 hours 4 hours 1 hour 1 hour
Sweat-in-time: 1 hour 1 hour 30 minutes 30 minutes 15 minutes 15 minutes 5 minutes 5 minutes

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

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.

Insufficient ventilation, incomplete mixing, miscalculation, 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 #104 (R7K104) in EPA and OTC I regions, or Reducer #111 (R7K111) in CARB and OTC II regions.

Please contact your Sherwin-Williams Representative for recommendations for immersion service of tinted material.

When coating over aluminum and galvanizing, recommended dft is 2-4 mils (50-100 microns).

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

Clean Up Instructions

Clean spills and splatters immediately with Reducer #104 (R7K104) in EPA and OTC I regions, or Reducer #111 (R7K111) in CARB and OTC II regions.

Clean tools immediately after use with Reducer #104 (R7K104) in EPA and OTC I regions, or Reducer #111 (R7K111) in CARB and OTC II regions.

Follow manufacturer’s safety recommendations when using any solvent.

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Safety Precautions

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Warranty

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