



**Industrial  
&  
Marine  
Coatings**



Certified to  
NSF/ANSI 61

**PART A  
PART A  
PART B**

# MACROPOXY<sup>®</sup> 646 NSF

**FAST CURE EPOXY**

**B58WX610  
B58LX600  
B58VX600**

**4.56**  
**MILL WHITE  
LIGHT BLUE  
HARDENER**

## PRODUCT INFORMATION

Revised 7/06

PRODUCT DESCRIPTION		RECOMMENDED USES																																								
<p><b>MACROPOXY 646 NSF FAST CURE EPOXY</b> is a high solids, high build, fast drying, polyamide epoxy certified by NSF to Standard 61 as a tank lining for potable water storage tanks. The high solids content ensures adequate protection of sharp edges, corners, and welds.</p>		<ul style="list-style-type: none"> <li>As an interior tank lining for potable storage water tanks of 1,500 gallon minimum tank size with standard cure and 100 gallon minimum tank size, 15" interior pipe - forced cure***</li> <li>Conforms to AWWA D102-03 ICS #1, #2, and #5, and OCS #5***</li> <li>Suitable for use with cathodic protection systems</li> </ul> <p>***Refer to respective systems</p>																																								
PRODUCT CHARACTERISTICS		PERFORMANCE CHARACTERISTICS																																								
<p><b>Finish:</b> Semi-Gloss</p> <p><b>Color:</b> Mill White and Light Blue</p> <p><b>Volume Solids:</b> 72% ± 2%, mixed</p> <p><b>Weight Solids:</b> 85% ± 2%, mixed</p> <p><b>VOC (EPA Method 24):</b> Unreduced: &lt;250 g/L; 2.08 lb/gal mixed Reduced 10%: &lt;300 g/L; 2.50 lb/gal</p> <p><b>Mix Ratio:</b> 1:1 by volume</p> <p><b>Recommended Spreading Rate per coat:</b></p> <table border="1"> <thead> <tr> <th></th> <th>Standard</th> <th>AWWA</th> </tr> </thead> <tbody> <tr> <td>Wet mils:</td> <td>7.0 - 13.5</td> <td>4.2 - 8.3</td> </tr> <tr> <td>Dry mils:</td> <td>5.0 - 10.0*</td> <td>3.0 - 6.0*</td> </tr> <tr> <td>Coverage:</td> <td>116 - 232</td> <td>192 - 384</td> </tr> </tbody> </table> <p><b>NOTE:</b> brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.</p> <p>* See Recommended Systems on reverse side</p> <p><b>Drying Schedule @ 7.0 mils wet and 50% RH:</b></p> <table border="1"> <thead> <tr> <th></th> <th>@ 40°F</th> <th>@ 77°F</th> <th>@ 100°F</th> </tr> </thead> <tbody> <tr> <td>To touch:</td> <td>4-5 hours</td> <td>2 hours</td> <td>1½ hours</td> </tr> <tr> <td>To handle:</td> <td>48 hours</td> <td>8 hours</td> <td>4½ hours</td> </tr> <tr> <td>To recoat:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>  minimum:</td> <td>48 hours</td> <td>8 hours</td> <td>4½ hours</td> </tr> <tr> <td>  maximum:</td> <td>3 months</td> <td>3 months</td> <td>3 months</td> </tr> <tr> <td>Cure for immersion:</td> <td>14 days</td> <td>7 days</td> <td>4 days</td> </tr> </tbody> </table> <p>If maximum recoat time is exceeded, scarify surface before recoating.</p> <p>Drying time is temperature, humidity and film thickness dependent.</p> <p>For <b>Potable Water Service</b>, allow a minimum cure time of 7 days at 77°F prior to placing in service. Sterilize and rinse per AWWA C652.</p> <p><b>Pot Life:</b> 10 hours 4 hours 2 hours</p> <p><b>Sweat-in-time:</b> 30 minutes 30 minutes 15 minutes</p> <p><b>Shelf Life:</b> 36 months, unopened Store indoors at 40°F to 100°F</p> <p><b>Flash Point:</b> 60°F, TCC, mixed</p> <p><b>Reducer/Clean Up:</b> Reducer, R7K15</p>		Standard	AWWA	Wet mils:	7.0 - 13.5	4.2 - 8.3	Dry mils:	5.0 - 10.0*	3.0 - 6.0*	Coverage:	116 - 232	192 - 384		@ 40°F	@ 77°F	@ 100°F	To touch:	4-5 hours	2 hours	1½ hours	To handle:	48 hours	8 hours	4½ hours	To recoat:				minimum:	48 hours	8 hours	4½ hours	maximum:	3 months	3 months	3 months	Cure for immersion:	14 days	7 days	4 days	<p><b>System Tested:</b> (unless otherwise indicated) Substrate: Steel Surface Preparation: SSPC-SP10 1 ct. Macropoxy 646 NSF Fast Cure Epoxy @ 6.0 mils dft</p> <p><b>Abrasion Resistance:</b> Method: ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load Result: 84 mg loss</p> <p><b>Adhesion:</b> Method: ASTM D4541 Result: 1,037 psi</p> <p><b>Corrosion Weathering, Zinc Clad II Plus Primer:</b> Method: ASTM D5894, 36 cycles, 12,000 hours Result: Rating 10 per ASTM D714 for blistering Rating 9 per ASTM D610 for rusting</p> <p><b>Direct Impact Resistance:</b> Method: ASTM D2794 Result: 30 in. lb.</p> <p><b>Dry Heat Resistance:</b> Method: ASTM D2485 Result: 250°F</p> <p><b>Flexibility:</b> Method: ASTM D522, 180° bend, 3/4" mandrel Result: Passes</p> <p><b>Humidity Resistance</b> Method: ASTM D4585, 6000 hrs Result: No blistering, cracking, or rusting</p> <p><b>Immersion:</b> Method: 1 year fresh and salt water Result: Passes, no rusting, blistering, or loss of adhesion</p> <p><b>Pencil Hardness:</b> Method: ASTM D3363 Result: 3H</p> <p><b>Water Vapor Permeance:</b> Method: ASTM D1653, Method B Result: 1.16 grains/ day</p> <p>Epoxy coatings may darken or discolor following application and curing.</p>	
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## PRODUCT INFORMATION

RECOMMENDED SYSTEMS	SURFACE PREPARATION
<p><b>Immersion, Steel:</b></p> <p><b>*AWWA D102-03: Inside Coating System No. 1</b> (minimum AWWA DFT 8.0 mils) 1 ct. Macropoxy 646 NSF @ 3.0 mils dft 1 ct. Macropoxy 646 NSF @ 5.0 mils dft</p> <p><b>*AWWA D102-03: Inside Coating System No. 2</b> (minimum AWWA DFT 12.0 mils) 1 ct. Macropoxy 646 NSF @ 3.0 mils dft 1 ct. Macropoxy 646 NSF @ 4.0 mils dft 1 ct. Macropoxy 646 NSF @ 5.0 mils dft</p> <p><b>*AWWA D102-03: Inside Coating System No. 3</b> (minimum AWWA DFT 10.0 mils) 1 ct. Zinc Clad II LV or Plus @ 2.0 mils dft 1 ct. Macropoxy 646 NSF @ 3.0 mils dft 1 ct. Macropoxy 646 NSF @ 5.0 mils dft</p> <p><b>*AWWA D102-03: Inside Coating System No. 5</b> (minimum AWWA DFT 10.0 mils) 1 ct. Corothane I Galvapac NSF @ 2.0 mils dft 2 cts. Macropoxy 646 NSF @ 4.0 mils dft/ct</p> <p><b>Steel, forced cure (100 gallon minimum tank size):</b> 2 cts. Macropoxy 646 NSF @ 5.0 - 6.0 mils dft/ct •12 mils maximum film thickness•Curing requirements     •Flash 2 hours @ 75°F     •24 hours @ 150°     •24 hours @ 75°F</p> <p><b>Atmospheric, Steel:</b></p> <p><b>*AWWA D102-03: Outside Coating System No. 5</b> (minimum DFT 6.0 mils) 1 ct. Macropoxy 646 NSF @ 2.0 mils dft 1 ct. Macropoxy 646 NSF @ 2.0 mils dft 1 ct. Acrolon 218HS @ 2.0 mils dft</p> <p><b>*AWWA D102-03: Outside Coating System No. 6</b> (minimum DFT 6.0 mils) 1 ct. Corothane I GalvaPac NSF @ 2.0 mils dft 1 ct. Macropoxy 646 NSF @ 2.0 mils dft 1 ct. Acrolon 218HS @ 2.0 mils dft</p> <p><b>Concrete/Masonry, smooth:</b> 2 cts. Macropoxy 646 NSF @ 3.0 - 6.0 mils dft/ct</p> <p>Refer to NSF.org for maximum dft restrictions</p> <p>The systems listed above are representative of the product's use. Other systems may be appropriate.</p>	<p>Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure good adhesion. Refer to product Application Bulletin for detailed surface preparation information.</p> <p>Minimum recommended surface preparation: Iron &amp; Steel     Atmospheric: SSPC-SP2/3     Immersion: SSPC-SP10/NACE 2, 2-3 mil profile Concrete &amp; Masonry     Immersion: SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI 03732, CSP 1-3</p>
<b>TINTING</b>	
Do not Tint	
<b>APPLICATION CONDITIONS</b>	
<p>Temperature: 40°F minimum, 110°F maximum (air, surface, and material) At least 5°F above dew point</p> <p>Relative humidity: 85% maximum</p> <p>Refer to product Application Bulletin for detailed application information.</p>	
<b>ORDERING INFORMATION</b>	
<p>Packaging:     Part A: 1 and 5 gallon containers     Part B: 1 and 5 gallon containers</p> <p>Weight per gallon: 12.7 ± 0.2 lb mixed, may vary by color</p>	
<b>SAFETY PRECAUTIONS</b>	
Refer to the MSDS sheet before use and application bulletin before use.	
<b>WARRANTY</b>	
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.	
<b>DISCLAIMER</b>	
The information and recommendations set forth in this Product information 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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## APPLICATION BULLETIN

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SURFACE PREPARATION	APPLICATION CONDITIONS														
<p>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.</p> <p><b>Carbon Steel, Immersion Service:</b> 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 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.</p> <p><b>Iron &amp; Steel, Atmospheric Service:</b> 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). Prime any bare steel within 8 hours or before flash rusting occurs.</p> <p><b>Ductile Iron, Immersion Service:</b> Refer to National Association of Pipe Fabricators Surface Preparations Standard NAPF 500-03 as follows:</p> <ul style="list-style-type: none"> <li>a. NAPF 500-03-01 "Solvent Cleaning"</li> <li>b. NAPF 500-03-02 "Hand Tool Cleaning"</li> <li>c. NAPF 500-03-03 "Power Tool Cleaning"</li> <li>d. NAPF 500-03-04 "Abrasive Blast Cleaning of Ductile Iron Pipe".</li> </ul> <p><b>Concrete and Masonry, Immersion Service:</b> Decontamination of the concrete surface requires the removal of oils, grease, wax, fatty acids and other contaminants and may be accomplished by the use of detergent scrubbing with a Sherwin-Williams cleaner and degreaser, low pressure water cleaning (less than 5,000 psi), steam cleaning, or chemical cleaning. The preferred methods for creating a surface profile, including the removal of dirt, dust, laitance and curing compounds, is abrasive blasting or scarifying to achieve an ICRI surface equivalent to CSP1-3. See ICRI Technical Guideline No. 03732 for additional information.</p> <p><b>Previously Painted Surfaces:</b> 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.</p>	<p>Temperature: 40°F minimum, 110°F maximum (air, surface, and material) At least 5°F above dew point</p> <p>Relative humidity: 85% maximum</p> <tr> <th colspan="2" data-bbox="829 764 1516 806">APPLICATION EQUIPMENT</th> </tr> <p>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.</p> <p><b>Reducer/Clean Up</b> ..... Reducer R7K15</p> <p><b>Airless Spray</b></p> <ul style="list-style-type: none"> <li>Pump ..... 30:1</li> <li>Pressure ..... 2800 - 3000 psi</li> <li>Hose ..... 1/4" ID</li> <li>Tip ..... .017" - .023"</li> <li>Filter ..... 60 mesh</li> <li>Reduction ..... As needed up to 10% by volume</li> </ul> <p><b>Brush</b></p> <ul style="list-style-type: none"> <li>Brush ..... Nylon/Polyester or Natural Bristle</li> <li>Reduction ..... As needed up to 10% by volume</li> </ul> <p><b>Roller</b></p> <ul style="list-style-type: none"> <li>Cover ..... 3/8" woven with phenolic core</li> <li>Reduction ..... As needed up to 10% by volume</li> </ul> <p><b>Recommended Spreading Rate per coat:</b></p> <table border="0"> <thead> <tr> <th></th> <th><b>Standard</b></th> <th><b>AWWA</b></th> </tr> </thead> <tbody> <tr> <td>Wet mils:</td> <td>4.2 - 8.3</td> <td>4.2 - 8.3</td> </tr> <tr> <td>Dry mils:</td> <td>3.0 - 6.0*</td> <td>3.0 - 6.0</td> </tr> <tr> <td>Coverage:</td> <td>192 - 384</td> <td>192 - 384</td> </tr> </tbody> </table> <p>sq ft/gal approximate</p> <p>*See recommended systems on product information page</p> <p>If specific application equipment is not listed above, equivalent equipment may be substituted.</p>	APPLICATION EQUIPMENT			<b>Standard</b>	<b>AWWA</b>	Wet mils:	4.2 - 8.3	4.2 - 8.3	Dry mils:	3.0 - 6.0*	3.0 - 6.0	Coverage:	192 - 384	192 - 384
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## APPLICATION BULLETIN

### APPLICATION PROCEDURES

### APPLICATION TIPS

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one 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 to the recommended film thickness and spreading rate as indicated below:

**Recommended Spreading Rate per coat:**

	Standard	AWWA
Wet mils:	7.0 - 13.5	4.2 - 8.3
Dry mils:	5.0 - 10.0*	3.0 - 6.0*
Coverage:	116 - 232	192 - 384

**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 @ 7.0 mils wet and 50% RH:**

	@ 40°F	@ 77°F	@ 100°F
To touch:	4-5 hours	2 hours	1½ hours
To handle:	48 hours	8 hours	4½ hours
To recoat:			
minimum:	48 hours	8 hours	4½ hours
maximum:	3 months	3 months	3 months
Cure for immersion:			
	14 days	7 days	4 days

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

Drying time is temperature, humidity and film thickness dependent.

For **Potable Water Service**, allow a minimum cure time of 7 days at 77°F prior to placing in service. Sterilize and rinse per AWWA C652.

Pot Life:	10 hours	4 hours	2 hours
Sweat-in-time:	30 minutes	30 minutes	15 minutes

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

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 spray at a right angle

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, rough-ness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, over thinning, climatic conditions, and excessive film build.

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

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 R7K15.

Tinting is not recommended for immersion service.

Quik-Kick Epoxy Accelerator is acceptable for atmospheric use.

Do not use Quik-Kick Epoxy Accelerator for immersion service when NSF certification is required. \

**Holiday Detection:** Use a wet sponge-type detector such as KD Bird Dog or equivalent equipment per manufacturer's recommendation. Test only cured coating, as solvent entrapment in fresh films may provide false readings.

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

### CLEAN UP INSTRUCTIONS

### SAFETY PRECAUTIONS

Clean spills and spatters immediately with Reducer R7K15. Clean tools immediately after use with Reducer R7K15.

Refer to the MSDS sheet before use.

### DISCLAIMER

### WARRANTY

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