



# Protective & Marine Coatings



# MACROPOXY® 646 PW POTABLE WATER EPOXY

PART A	B58WX610	MILL WHITE
PART A	B58LX600	LIGHT BLUE
PART B	B58VX600	HARDENER
PART B	B58VX605	OAP HARDENER

Revised 9/09

## PRODUCT INFORMATION

4.56

### PRODUCT DESCRIPTION

**MACROPOXY 646 PW EPOXY** is a high solids, high build, fast drying, polyamide epoxy classified by UL to ANSI/NSF 61 as a tank lining for potable water storage tanks. The high solids content ensures adequate protection of sharp edges, corners, and welds. B58VX605 Hardener contains Opti-Check OAP pigment technology for rapid holiday detection with safe blue light inspection lamps.

- Low VOC
- Low odor
- Outstanding application properties

### PRODUCT CHARACTERISTICS

<b>Finish:</b>	Semi-Gloss
<b>Color:</b>	Mill White and Light Blue
<b>Volume Solids:</b>	72% ± 2%, mixed
<b>Weight Solids:</b>	85% ± 2%, mixed
<b>VOC (EPA Method 24):</b>	Unreduced: <250 g/L; 2.08 lb/gal mixed Reduced 10%: <300 g/L; 2.50 lb/gal
<b>Mix Ratio:</b>	1:1 by volume

### Recommended Spreading Rate per coat:

	Standard		AWWA	
	Min.	Max.	Min.	Max.
<b>Wet mils (microns)</b>	7.0	175	135	340
<b>Dry mils (microns)</b>	5.0	125	10* 250*	3.0 75 6.0* 150*
<b>~Coverage sq ft/gal (m<sup>2</sup>/L)</b>	116	2.8	232	5.6 192 4.7 384 9.4
<b>Theoretical coverage sq ft/gal (m<sup>2</sup>/L) @ 1 mil/25 micron dft</b>	1152 (28.2)			

*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 (175 microns):

	@ 40°F/4.5°C	@ 77°F/25°C	@ 100°F/38°C
		50% RH	
<b>To touch:</b>	4-5 hours	2 hours	1.5 hours
<b>To handle:</b>	48 hours	8 hours	4.5 hours
<b>To recoat:</b>			
<b>minimum:</b>	48 hours	8 hours	4.5 hours
<b>maximum:</b>	1 year	1 year	1 year
<b>Cure for</b>			
<b>immersion:</b>	14 days	7 days	4 days

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

<b>Pot Life:</b>	10 hours	4 hours	2 hours
<b>Sweat-in-Time:</b>	30 minutes	30 minutes	15 minutes

For Potable Water Service, allow a minimum cure time of 7 days at 77°F (25°C) prior to placing in service. 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>	91°F (33°C), TCC, mixed
<b>Reducer/Clean Up:</b>	Reducer R7K15

### RECOMMENDED USES

#### Potable Water Tank Restrictions

Water Contact Temp: 23°C  
 Standard Cure; Tanks >= 1,500 gal: 2 cts  
 Standard Cure; Pipe >= 49.2"  
 Forced Cure; Tanks >= 100 gal: 2 cts  
 Forced Cure, Pipe >= 15": 2 cts  
 Forced Cure; Maximum DFT: 6 mils/ct, 2 cts

- Conforms to AWWA D102-03 ICS #1, #2, and #5, and OCS #5\*\*\*
- Meets or exceeds the performance requirements of SSPC Paint Spec 22

\*\*\*Refer to respective systems

### PERFORMANCE CHARACTERISTICS

**Substrate\*:** Steel

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

**System Tested\*:**

1 ct. Macropoxy 646 PW Fast Cure @ 6.0 mils (150 microns) dft  
 \*unless otherwise noted below

Test Name	Test Method	Results
<b>Abrasion Resistance</b>	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	84 mg loss
<b>Adhesion</b>	ASTM D4541	1,037 psi
<b>Corrosion Weathering<sup>1</sup></b>	ASTM D5894, 36 cycles, 12,000 hours	Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 per rusting
<b>Direct Impact Resistance</b>	ASTM D2794	30 in. lb.
<b>Dry Heat Resistance</b>	ASTM D2485	250°F (121°C)
<b>Flexibility</b>	ASTM D522, 180° bend, 3/4" mandrel	Passes
<b>Humidity Resistance</b>	ASTM D4585, 6000 hours	No blistering, cracking, or rusting
<b>Immersion<sup>2</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>Pencil Hardness</b>	ASTM D3363	3H
<b>Water Vapor Permeance</b>	ASTM D1653, Method B	1.16 grains/day

Epoxy coatings may darken or discolor following application and curing.

#### Footnotes:

<sup>1</sup> Zinc Clad II Plus Primer

<sup>2</sup> Galvapac/2 cts Macropoxy 646 PW



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<b>PART B</b>	<b>B58VX600</b>	<b>HARDENER</b>
<b>PART B</b>	<b>B58VX605</b>	<b>OAP HARDENER</b>

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### RECOMMENDED SYSTEMS

	Dry Film Thickness / ct.	
	Mils	(Microns)
<b>Immersion, Steel:</b>		
<b>*AWWA D102-03: Inside Coating System No. 1</b>		
minimum AWWA	8.0	(200)
1 ct. Macropoxy 646 PW	3.0	(75)
1 ct. Macropoxy 646 PW	5.0	(125)
<b>*AWWA D102-03: Inside Coating System No. 2</b>		
minimum AWWA	12.0	(300)
1 ct. Macropoxy 646 PW	3.0	(75)
1 ct. Macropoxy 646 PW	4.0	(100)
1 ct. Macropoxy 646 PW	5.0	(125)
<b>*AWWA D102-03: Inside Coating System No. 3</b>		
minimum AWWA	10.0	(250)
1 ct. Zinc Clad II LV or Plus	2.0	(50)
1 ct. Macropoxy 646 PW	3.0	(75)
1 ct. Macropoxy 646 PW	5.0	(125)
<b>*AWWA D102-03: Inside Coating System No. 5</b>		
minimum AWWA	10.0	(250)
1 ct. Corothane I Galvapac	2.0	(50)
2 cts. Macropoxy 646 PW	4.0	(100)
<b>Steel, forced cure (100 gallon minimum tank size or 15" or greater pipe diameter):</b>		
2 cts. Macropoxy 646 PW	5.0-6.0	(125-150)
•12 mils maximum film thickness •Curing requirements		
	•Flash 2 hours @ 75°F (24°C)	
	•24 hours @ 150°F (66°C)	
	•24 hours @ 75°F (24°C)	
<b>Atmospheric, Steel:</b>		
<b>*AWWA D102-03: Outside Coating System No. 5</b>		
minimum	6.0	(150)
1 ct. Macropoxy 646 PW	2.0	(50)
1 ct. Macropoxy 646 PW	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)
<b>*AWWA D102-03: Outside Coating System No. 6</b>		
minimum	6.0	(150)
1 ct. Corothane I GalvaPac PW	2.0	(50)
1 ct. Macropoxy 646 PW	2.0	(50)
1 ct. Acrolon 218HS	2.0	(50)
<b>Concrete/Masonry, smooth:</b>		
2 cts. Macropoxy 646 PW	3.0-6.0	(75-150)

Refer to UL.com for maximum dft restrictions

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:

<b>Iron &amp; Steel</b>	
Atmospheric:	SSPC-SP2/3
Immersion:	SSPC-SP10/NACE 2, 2-3 mil (50-75 micron) profile
<b>Concrete &amp; Masonry</b>	
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI 03732, CSP 1-3

#### 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	D St 3	D St 3	SP 3	-

### TINTING

Do not tint.

### APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 110°F (43°C) maximum (air, surface, and material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

Refer to product Application Bulletin for detailed application information.

### ORDERING INFORMATION

<b>Packaging:</b>	
Part A:	1 gallon (3.78L) and 5 gallon (18.9L) containers
Part B:	1 gallon (3.78L) and 5 gallon (18.9L) containers
<b>Weight:</b>	12.7 ± 0.2 lb/gal ; 1.5 Kg/L mixed, may vary by 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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Revised 9/09

## APPLICATION BULLETIN

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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.

#### 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 03732, 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.

#### Always follow the standard methods listed below:

- 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 03732 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 03732, 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	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 10	3
Brush-Off Blast	Sa 1	Sa 1	SP 10	4
Hand Tool Cleaning	OC St 2	OC St 2	SP 3	-
Rusted	OC St 2	OC St 2	SP 3	-
Pitted & Rusted	OC St 2	OC St 2	SP 3	-
Rusted	OC St 3	OC St 3	SP 3	-
Power Tool Cleaning	Pt St 3	Pt St 3	SP 3	-
Pitted & Rusted	Pt St 3	Pt St 3	SP 3	-

### APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 110°F (43°C) maximum (air, surface, and material) At least 5°F (2.8°C) above dew point
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 R7K15

#### Airless Spray

Pump.....	30:1
Pressure.....	2800 - 3000 psi
Hose.....	1/4" ID
Tip.....	.017" - .023"
Filter.....	60 mesh
Reduction.....	As needed up to 10% by volume

#### Brush

Brush.....	Nylon/Polyester or Natural Bristle
Reduction.....	As needed up to 10% by volume

#### Roller

Cover.....	3/8" woven with solvent resistant core
Reduction.....	As needed up to 10% by volume

Recommended Spreading Rate per coat:

	Standard	AWWA
Wet mils (microns):	7.0 (175) - 13.5 (340)	4.2 (105) - 8.3 (208)
Dry mils (microns):	5.0 (125) - 10.0* (250)	3.0 (75) - 6.0* (150)
Coverage:	116 (2.8) - 232 (5.6) sq ft/gal (m <sup>2</sup> /L)	192 (4.7) - 384 (9.4)

\*See recommended systems on Product Information page

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



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## APPLICATION BULLETIN

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### APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed 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 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)	7.0	175	13.5	340
Dry mils (microns)	5.0	125	10*	250*
~Coverage sq ft/gal (m <sup>2</sup> /L)	116	2.8	232	5.6
Theoretical coverage sq ft/gal (m <sup>2</sup> /L) @ 1 mil/25 micron dft	1152 (28.2)			

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 (175 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	4-5 hours	2 hours	1.5 hours
To handle:	48 hours	8 hours	4.5 hours
To recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
Cure for			
immersion:	14 days	7 days	4 days

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

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

Pot Life: 10 hours 4 hours 2 hours

Sweat-in-Time: 30 minutes 30 minutes 15 minutes

For Potable Water Service, allow a minimum cure time of 7 days at 77°F (25°C) prior to placing in service. 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 R7K15. Clean tools immediately after use with Reducer R7K15.

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### PERFORMANCE TIPS

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, roughness 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 UL ANSI/ 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 UL certification is required.

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.

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

### SAFETY PRECAUTIONS

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### WARRANTY

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