



# Protective & Marine Coatings

# MACROPOXY® 646 SE SHOP EPOXY

PART A  
PART B

B58-630  
B58V630  
B60V200

SERIES  
HARDENER  
QUICK KICK ACCELERATOR

Revised: February 4, 2022

## PRODUCT INFORMATION

4.58

### PRODUCT DESCRIPTION

**MACROPOXY 646 SE - SHOP EPOXY** is a fast dry, high build, polyamide epoxy designed for quick recoat in shop or blast yard applications. Fast dry to handle, recoat, and cure properties assist production schedules on critical path projects with demanding schedules. Staging times are reduced, for improved shop-through times. Corrosion and abrasion resistant, Featuring:

- Quick recoat
- Low odor
- Chemical resistant
- Quick handling times
- Abrasion resistant
- Corrosion resistant

### PRODUCT CHARACTERISTICS

Finish:	Semi-Gloss
Color:	Buff, Gray, and White
Volume Solids:	73% ± 2%, mixed
Weight Solids:	85% ± 2%, mixed
VOC (EPA Method 24):	<250 g/L; 2.08 lb/gal, mixed
Mix Ratio:	1:1 by volume

#### Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	6.0 (150)	11.0 (275)
Dry mils (microns)	4.0 (100)	8.0 (200)
~Coverage sq ft/gal (m <sup>2</sup> /L)	146 (3.6)	292 (7.1)
Theoretical coverage sq ft/gal (m <sup>2</sup> /L) @ 1 mil / 25 microns dft	1168 (28.6)	

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

#### Drying Schedule @ 7.0 mils (175 microns):

	@ 40°F / 4.5°C	@ 77°F / 25°C	@ 100°F / 38°C	With Quik Kick Accelerator @ 4 oz. / gal	@ 40°F / 4.5°C	@ 77°F / 25°C
			50% RH			
To touch:	4-5 hours	2 hours	1.5 hours	1-2 hours	30 minutes	
To handle:	48 hours	8 hours	4.5 hours	24 hours	3.5 hours	
To recoat:						
minimum	48 hours	8 hours	4.5 hours	24 hours	3.5 hours	
maximum	1 year	1 year	1 year	1 year	1 year	
To cure:	10 days	7 days	4 days	10 days	7 days	
Pot Life:	10 hours	4 hours	2 hours	4 hours	2 hours	
Sweat-in-time:	30 min.	30 min.	15 min.	30 min.	30 min.	

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

Shelf Life:	36 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	91°F (33°C), TCC, mixed
Reducer/Clean Up <sup>1</sup> :	VOC Restricted Areas (<250 g/L): use Reducer R7K111 or Oxsol 100

<sup>1</sup>Other areas (<340 g/L): use Reducer R7K111, Oxsol 100, or Reducer R7K15 up to 10%. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

### RECOMMENDED USES

- Shop Applications
- Structural Steel
- Pipe coating shops
- Modular Design Industrial Projects
- Offshore and Marine Fabrication Projects
- Suitable for use in USDA inspected facilities
- Conforms to AWWA D102 OCS #5

### PERFORMANCE CHARACTERISTICS

Substrate\*: Steel

Surface Preparation\*: SSPC-SP10

System Tested\*: 1 ct. Macropoxy 646 SE @ 6.0 mils (150 microns) dft

\*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	84 mg loss
Adhesion	ASTM D4541	1,000 psi
Direct Impact Resistance	ASTM D2794	30 in. lb.
Dry Heat Resistance	ASTM D2485	250°F/121°C
Exterior Durability	1 year at 45° South	Excellent, chalks
Flexibility	ASTM D522, 180° bend, 3/4" mandrel	Passes
Humidity Resistance	ASTM D4585	No blistering, cracking, or rusting

Epoxy coatings may darken or discolor following application and curing.



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### RECOMMENDED SYSTEMS

		Dry Film Thickness / ct.	
		Mils	(Microns)
<b>Atmospheric: Steel:</b>			
1 ct	Zinc Clad II Plus	2.0-4.0	(50-100)
1 ct	Macropoxy 646 SE-Shop Epoxy	4.0-6.0	(100-150)
1 ct	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
1 ct	Zinc Clad III HS	3.0-5.0	(75-125)
1 ct	Macropoxy 646 SE-Shop Epoxy	4.0-6.0	(100-150)
1 ct	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
1 ct	Macropoxy 646 SE-Shop Epoxy	4.0-6.0	(100-150)
1 ct	Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
1 ct	Macropoxy 646 SE-Shop Epoxy	4.0-6.0	(100-150)
1 ct	Tile Clad HS Epoxy	2.5-4.0	(63-100)

Other acceptable 646 SE topcoats:  
Sher-Thane 2K Polyurethane  
Hi-Solids Polyurethane  
Epolon II Multi-Mil Epoxy

### 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	SSPC-SP-6 (minimum)
Atmospheric:	SSPC-SP-10, 2-3 mil anchor profile, preferred
	SSPC-SP2/3 for field weld tie-ins and small repairs

#### Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	SSPC	NACE
White Metal	Sa 3	SP 5	1
Near White Metal	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	SP 2	-
Rusted	D St 2	SP 2	-
Pitted & Rusted	C St 3	SP 3	-
Rusted	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted	D St 3	SP 3

### TINTING

Not recommended.

### APPLICATION CONDITIONS

Temperature: 40°F/4.5°C minimum, 120°F/49°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

Packaging:  
Part A: 5 gallon containers, 18.9L  
Part B: 5 gallon containers, 18.9L

Weight: 12.9 ± 0.2 lb/gal, 1.55 Kg/L  
mixed, may vary by color

### 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

4.58

### 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 SSPC-SP-6/NACE 3, 2-3 mil profile\*. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel within 8 hours or before flash rusting occurs.

\* Minimum surface preparation is Hand Tool / Power Tool Cleaning per SSPC-SP2/3 when DFT is 5.0-8.0 mils.

### APPLICATION CONDITIONS

Temperature: 40°F/4.5°C minimum, 120°F/49°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<sup>1</sup> ..... VOC Restricted Areas (<250 g/L):  
use Reducer R7K111 or Oxsol 100

<sup>1</sup>Other areas (<340 g/L): use Reducer R7K111, Oxsol 100, or Reducer R7K15 up to 10%. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

#### 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

#### Conventional Spray

Gun .....DeVilbiss MBC-510  
Fluid Tip .....E  
Air Nozzle.....704  
Atomization Pressure.....60-65 psi  
Fluid Pressure.....10-20 psi  
Reduction.....As needed up to 10% by volume  
Requires oil and moisture separators

#### Brush (small areas only)

Brush.....Nylon/Polyester or Natural Bristle  
Reduction.....Not recommended

#### Roller (small areas only)

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

#### Surface Preparation Standards

Condition of Surface		ISO 8501-1 BS7079:A1	SSPC	NACE
White Metal		Sa 3	SP 5	1
Near White Metal		Sa 2.5	SP 10	2
Commercial Blast		Sa 2	SP 6	3
Brush-Off Blast		Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	CC St 2	SP 2	-
	Pitted & Rusted	CC St 2	SP 2	-
Power Tool Cleaning	Rusted	DC St 3	SP 3	-
	Pitted & Rusted	DC St 3	SP 3	-

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 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.

#### Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	6.0 (150)	11.0 (275)
Dry mils (microns)	4.0 (100)	8.0 (200)
~Coverage sq ft/gal (m <sup>2</sup> /L)	146 (3.6)	292 (7.1)
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NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

#### Drying Schedule @ 7.0 mils (175 microns):

	@ 40°F / 4.5°C	@ 77°F / 25°C	@ 100°F / 38°C	With Quik Kick Accelerator @ 4 oz. / gal	
				@ 40°F / 4.5°C	@ 77°F / 25°C
			50% RH		
To touch:	4-5 hours	2 hours	1.5 hours	1-2 hours	30 minutes
To handle:	48 hours	8 hours	4.5 hours	24 hours	3.5 hours
To recoat:					
minimum	48 hours	8 hours	4.5 hours	24 hours	3.5 hours
maximum	1 year	1 year	1 year	1 year	1 year
To cure:	10 days	7 days	4 days	10 days	7 days
Pot Life:	10 hours	4 hours	2 hours	4 hours	2 hours
Sweat-in- time:	30 min.	30 min.	15 min.	30 min.	30 min.

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

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. In California use Reducer R7K111. Follow manufacturer's safety recommendations when using any solvent.

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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, overthinning, climatic conditions, and excessive film build.

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

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. In California use Reducer R7K111.

Quik-Kick Epoxy Accelerator is acceptable for use. See product data sheet for details.

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

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