Protective & Marine Coatings
PRODUCT DATA SHEET

MACROPOXY® 646
FAST CURE EPOXY MASTIC

Revised: September 10, 2024

PRODUCT DESCRIPTION

MACROPOXY 646 Fast Cure Epoxy Mastic is a high solids, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.

INTENDED USES

- Recommended for marine applications, refineries, offshore platforms, fabrication shops, chemical plants, tank exteriors, power plants, water treatment plants, and mining and minerals industry
- Factory ground formulas are available for subsea/immersion service. For a full list of shades please consult Sherwin-Williams

PRODUCT DATA

Finish: Semi-Gloss

Colors: Mill White, Black and a wide range of colors available through tinting

Volume Solids: 72% ± 2%, mixed, Mill White

VOC (mixed): <250 g/L; 2.08 lb/gal

Mix Ratio: 1:1 by volume

Typical Thickness:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**7.0** (175)	**13.5** (338)
Dry mils (microns)	**5.0*** (125)	**10.0** (250)
~Coverage sq ft/gal (m^2/L)	**115** (2.9)	**230** (5.8)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**1152** (28.2)	

*May be applied at 3.0-10.0 mils (75-250 microns) dft as an intermediate in a multicoat system.

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

Shelf Life: 36 months, unopened
Store indoors at 40°F (4.5°C) to 110°F (43°C).

Flash Point: 91°F (33°C), TCC, mixed

Reducer/Clean Up[1]: VOC Restricted Areas (<250 g/L): use Reducer #111 or Oxsol 100

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

[1]Other areas (<340 g/L): use Reducer #111, Oxsol 100, Reducer #15, Reducer #58, or MEK up to 10%. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

Average Drying Times @ 7.0 mils (175 microns) wet:

	35°F (1.7°C) *50% RH*	77°F (25°C) *50% RH*	100°F (38°C) *50% RH*
Touch:	4-5 hours	2 hours	1.5 hours
Handle:	48 hours	8 hours	4.5 hours
Recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
Cure to service:			
atmospheric:	10 days	7 days	4 days
immersion:	14 days	7 days	4 days

Average Drying Times as intermediate @ 5.0 mils (125 microns) wet:

Touch:	3 hours	1 hour	1 hour
Handle:	48 hours	4 hours	2 hours
Recoat:			
minimum:	16 hours	4 hours	2 hours
maximum:	1 year	1 year	1 year

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.
Paint temperature must be 40°F (4.5°C) minimum.

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

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-SP2/3/ ISO8501-1:2007 St 2 or SSPC-SP WJ-3 / NACE WJ-3L Immersion: SSPC-SP10 / NACE 2/ ISO8501-1:2007 Sa 2.5, 2-3 mil (50-75 micron) profile or SSPC-SP WJ-2/NACE WJ-2L
Stainless Steel:	Atmospheric: SSPC-SP16, 1 mil (25 micron) profile
Aluminum & Galvanizing:	SSPC-SP1. If surface has not be weathered for more than 6 months, follow SSPC-SP1 then SSPC-SP16. For fire proofing projects, consult a Sherwin-Williams representative for surface preparation requirements.
Concrete & Masonry:	Atmospheric: SSPC-SP13/NACE 6, or ICRI No. 310.2R CSP 1-3 Immersion: SSPC-SP13/NACE 6-4.3.1
Ductile Iron Pipe:	Atmospheric: NAPF 500-03-03 Power Tool Cleaning Buried & Immersion: NAPF 500-03-04 Abrasive Blast Cleaning Cast Ductile Iron Fittings: NAPF 500-03-05 Abrasive Blast Cleaning

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APPLICATION

Airless Spray*
Pump 30:1
Pressure ..... 2800-3000 psi (193-206 bar)
Hose ..... 1/4" ID (6.3 mm)
Tip ..... .017"-.023" (0.43-0.58 mm)
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 (4.1-4.5 bar)
Fluid Pressure ..... 10-20 psi (0.7-1.4 bar)

Brush*
Brush ..... Nylon/Polyester or Natural Bristle

Roller*
Cover ..... 3/8" woven with solvent resistant core

Plural Component Spray .... Acceptable

*Reduction[1] ..... VOC Restricted Areas (<250 g/L): use Reducer #111 or Oxsol 100

[1]Other areas (<340 g/L): use Reducer #111, Oxsol 100, or Reducer #15 up to 10%. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

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

RECOMMENDED SYSTEMS

Dry Film Thickness / ct.		Mils	(Microns)
Steel & Ductile Iron, Immersion & Atmospheric			
2 Cts.	Macropoxy 646	5.0-10.0	(125-250)
Steel, Organic Zinc Primer, Atmospheric			
1 Ct.	Zinc Clad IV (85)	3.0-5.0	(75-125)
1 Ct.	Macropoxy 646	5.0-10.0	(125-250)
Steel, Inorganic Zinc Primer, Atmospheric			
1 Ct.	Zinc Clad II (85)	2.0-4.0	(50-100)
1 Ct.	Macropoxy 646	5.0-10.0	(125-250)
Steel, Organic Zinc/Epoxy/Urethane Topcoat			
1 Ct.	Zinc Clad IV (85)	3.0-5.0	(75-125)
1 Ct.	Macropoxy 646	3.0-10.0	(75-250)
1 Ct.	Acrolon 7300	2.0-4.0	(50-100)
Steel, Inorganic Zinc/Epoxy/Urethane Topcoat			
1 Ct.	Zinc Clad II (85)	2.0-4.0	(50-100)
1 Ct.	Macropoxy 646	3.0-10.0	(75-250)
1 Ct.	Acrolon 7300	2.0-4.0	(50-100)
Steel, Organic Zinc/Epoxy/Polysiloxane Topcoat, Atmospheric			
1 Ct.	Zinc Clad IV (85)	3.0-5.0	(75-125)
1 Ct.	Macropoxy 646	3.0-10.0	(75-250)
1-2 Cts.	Sher-Loxane 800	4.0-6.0	(100-150)
Steel: Norsok M501 System 7B/Subsea			
2 Cts.	Macropoxy 646	7.0	(175)
Concrete/Masonry, Smooth, Immersion & Atmospheric			
2 Cts.	Macropoxy 646	5.0-10.0	(125-250)

The systems listed above are representative of the product's use, other systems may be appropriate.

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.

APPLICATION CONDITIONS

Temperature:
Air: 35°F (1.7°C) minimum, 120°F (49°C) maximum
Surface*: 35°F (1.7°C) minimum, 250°F (120°C) maximum
Material: 40°F (4.5°C) minimum
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

*Application to surfaces above 120°F (49°C) is not recommended in VOC Restricted Areas (≤250 g/L). When spraying a surface above 120°F (49°C) in other areas (>250 g/L), please consult with your Sherwin-Williams representative.

APPROVALS

- Suitable for use in USDA inspected facilities
- Acceptable for use in Canadian Food Processing facilities, categories: D1, D2, D3 (Confirm acceptance of specific part numbers/rexes with your SW Sales Representative)
- Conforms to AWWA D102 OCS #5
- Conforms to MPI # 108
- This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilities
- Meets Class A requirements for Slip Coefficient, 0.36 @ 6 mils / 150 microns dft (Mill White only)
- Approved intermediate for NEPCOAT System B
- Approved to Norsok M501 system 7B (limited colors)
- ISO 12944:2018 approved for C2 to CX

ADDITIONAL NOTES

Tint Part A with GIC colorants at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Tinting is not recommended for immersion service.

Can be used as a metalizing sealer. Consult your Sherwin-Williams Representative regarding Product Bullentin: "Sealers for Thermal Spray Metalizing".

Quick-Kick Epoxy Accelerator is acceptable for use. See data page for details.

Acceptable for concrete floors.

Application to surfaces above 120°F (49°C) is not recommended in VOC Restricted Areas (≤250 g/L). When spraying a surface above 120°F (49°C) in other areas (>250 g/L), please consult with your Sherwin-Williams representative. Spray apply only. Product will produce an orange peel appearance when applied at elevated temperatures.

Topcoating: It is recommended to apply a thinned-down, low wet film thickness mist coat over zinc rich primers to help avoid outgassing. Allow it to tack up and seal the surface. Then apply a full wet film thickness coat as directed.

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.

HEALTH AND SAFETY

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.

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 Sheet.