



Protective & Marine Coatings
PRODUCT DATA SHEET



MACROPOXY® 646
FAST CURE EPOXY

Revised: May 21, 2020

PRODUCT DESCRIPTION

MACROPOXY 646 Fast Cure Epoxy 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
- Mill White and Black are acceptable for immersion use for salt water and fresh water, not acceptable for potable water

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): | Unreduced: <250 g/L; 2.08 lb/gal Reduced 10%: <300 g/L; 2.50 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: | Reducer #15, Reducer #58, or MEK (California) Reducer #111 or Oxsol 100 |
| Weight: | 12.9 ± 0.2 lb/gal ; 1.55 Kg/L, mixed, may vary by color |

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 |



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MACROPOXY® 646

FAST CURE EPOXY

| APPLICATION | APPLICATION CONDITIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>Airless Spray*</p> <p>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</p> <p>Conventional Spray*</p> <p>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)</p> <p>Brush*</p> <p>Brush.....Nylon/Polyester or Natural Bristle</p> <p>Roller*</p> <p>Cover.....3/8" woven with solvent resistant core</p> <p>Plural Component Spray ..Acceptable</p> <p>*Reduction.....As needed up to 10% by volume</p> <p>If specific application equipment is not listed above, equivalent equipment may be substituted.</p> | <p>Temperature:</p> <p>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</p> <p>Relative humidity: 85% maximum</p> <p>*When spraying a surface above 120°F (49°C), reduce material 10% with Reducer #100, R7K100. Spray apply only. Product will produce an orange peel appearance when applied at elevated temperatures.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | APPROVALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <ul style="list-style-type: none"> 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) <p>* Nuclear qualifications are NRC license specific to the facility</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RECOMMENDED SYSTEMS | ADDITIONAL NOTES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Dry Film Thickness / ct.</th> <th>Mils</th> <th>(Microns)</th> </tr> </thead> <tbody> <tr> <td>Steel, Immersion & Atmospheric</td> <td></td> <td></td> </tr> <tr> <td>2 Cts. Macropoxy 646</td> <td>5.0-10.0</td> <td>(125-250)</td> </tr> <tr> <td>Steel, Organic Zinc Primer, Atmospheric</td> <td></td> <td></td> </tr> <tr> <td>1 Ct. Zinc Clad IV (85)</td> <td>3.0-5.0</td> <td>(75-125)</td> </tr> <tr> <td>1 Ct. Macropoxy 646</td> <td>5.0-10.0</td> <td>(125-250)</td> </tr> <tr> <td>Steel, Inorganic Zinc Primer, Atmospheric</td> <td></td> <td></td> </tr> <tr> <td>1 Ct. Zinc Clad II (85)</td> <td>2.0-4.0</td> <td>(50-100)</td> </tr> <tr> <td>1 Ct. Macropoxy 646</td> <td>5.0-10.0</td> <td>(125-250)</td> </tr> <tr> <td>Steel, Organic Zinc/Epoxy/Urethane Topcoat</td> <td></td> <td></td> </tr> <tr> <td>1 Ct. Zinc Clad IV (85)</td> <td>3.0-5.0</td> <td>(75-125)</td> </tr> <tr> <td>1 Ct. Macropoxy 646</td> <td>3.0-10.0</td> <td>(75-250)</td> </tr> <tr> <td>1 Ct. Acrolon 7300</td> <td>2.0-4.0</td> <td>(50-100)</td> </tr> <tr> <td>Steel, Inorganic Zinc/Epoxy/Urethane Topcoat</td> <td></td> <td></td> </tr> <tr> <td>1 Ct. Zinc Clad II (85)</td> <td>2.0-4.0</td> <td>(50-100)</td> </tr> <tr> <td>1 Ct. Macropoxy 646</td> <td>3.0-10.0</td> <td>(75-250)</td> </tr> <tr> <td>1 Ct. Acrolon 7300</td> <td>2.0-4.0</td> <td>(50-100)</td> </tr> <tr> <td>Steel, Organic Zinc/Epoxy/Polysiloxane Topcoat, Atmospheric</td> <td></td> <td></td> </tr> <tr> <td>1 Ct. Zinc Clad IV (85)</td> <td>3.0-5.0</td> <td>(75-125)</td> </tr> <tr> <td>1 Ct. Macropoxy 646</td> <td>3.0-10.0</td> <td>(75-250)</td> </tr> <tr> <td>1-2 Cts. Sher-Loxane 800</td> <td>2.0-4.0</td> <td>(50-100)</td> </tr> <tr> <td>Concrete/Masonry, Smooth, Immersion & Atmospheric</td> <td></td> <td></td> </tr> <tr> <td>2 Cts. Macropoxy 646</td> <td>5.0-10.0</td> <td>(125-250)</td> </tr> </tbody> </table> <p>The systems listed above are representative of the product's use, other systems may be appropriate.</p> | Dry Film Thickness / ct. | Mils | (Microns) | Steel, 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 | 2.0-4.0 | (50-100) | Concrete/Masonry, Smooth, Immersion & Atmospheric | | | 2 Cts. Macropoxy 646 | 5.0-10.0 | (125-250) | <p>Tint Part A with Maxitoners at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.</p> <p>Tinting is not recommended for immersion service.</p> <p>Quik-Kick Epoxy Accelerator is acceptable for use. See data page for details.</p> <p>Acceptable for concrete floors.</p> <p>When spraying a surface above 120°F (49°C), reduce material 10% with Reducer #100. Spray apply only. Product will produce an orange peel appearance when applied at elevated temperatures.</p> <p>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.</p> <p>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.</p> |
| Dry Film Thickness / ct. | Mils | (Microns) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Steel, Immersion & Atmospheric | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Steel, Organic Zinc Primer, Atmospheric | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 Ct. Zinc Clad IV (85) | 3.0-5.0 | (75-125) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Steel, Inorganic Zinc Primer, Atmospheric | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 Ct. Zinc Clad II (85) | 2.0-4.0 | (50-100) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Steel, Organic Zinc/Epoxy/Urethane Topcoat | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 Ct. Zinc Clad IV (85) | 3.0-5.0 | (75-125) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1 Ct. Acrolon 7300 | 2.0-4.0 | (50-100) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Steel, Inorganic Zinc/Epoxy/Urethane Topcoat | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Steel, Organic Zinc/Epoxy/Polysiloxane Topcoat, Atmospheric | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 Ct. Zinc Clad IV (85) | 3.0-5.0 | (75-125) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1-2 Cts. Sher-Loxane 800 | 2.0-4.0 | (50-100) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Concrete/Masonry, Smooth, Immersion & Atmospheric | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 Cts. Macropoxy 646 | 5.0-10.0 | (125-250) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WARRANTY | HEALTH AND SAFETY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>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.</p> | <p>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.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | DISCLAIMER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>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.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |