

## SELECTION & SPECIFICATION DATA

<b>Generic Type</b>	Inorganic silicate
<b>Description</b>	Thermaline 4000 is a high heat polymer coating used for the protection of equipment operating at elevated temperatures. It is typically used over Carbozinc® inorganic zinc primers for outstanding corrosion protection and heat resistance. The combination of the zinc primer with this finish provides exceptional performance in durability. Unlike most high temperature silicone-based technologies with soft films, Thermaline 4000 does not require a heat cure for film forming properties. It cures hard rapidly under ambient conditions (humidity greater than 30%).
<b>Features</b>	<ul style="list-style-type: none"> <li>• Inorganic; stable; inert polymer</li> <li>• Outstanding durability</li> <li>• Excellent corrosion protection (used over Carbozinc inorganic primers)</li> <li>• High temperature resistance (800 °F [426 °C])</li> <li>• VOC compliant</li> <li>• Cures at ambient conditions (hard in 2 hours)</li> <li>• Cures down to 40 °F (4 °C)</li> <li>• Does not require heat cure for high-temp service</li> <li>• Outstanding resistance to handling damage</li> <li>• Single-package</li> </ul>
<b>Color</b>	Grey (C703), Grey (C705), Grey (F703), & White (S800)
<b>Finish</b>	Flat
<b>Primer</b>	Best when used over solvent-based inorganic zinc primers such as Carbozinc 11 Series. Carbozinc 608 HB, Carbozinc 808, Carbozinc 858 Series, and Carbozinc 859 Series are suitable organic zinc primers for lower maximum dry temperature service and/or for repairing mechanical damage to the coating system that may result in bare metal being exposed. Refer to the specific organic zinc primer's Product Data Sheet for the maximum dry temperature resistance.
<b>Dry Film Thickness</b>	3 - 5 mils (76 - 127 microns) . Not to exceed 7 mils (175 microns)
<b>Solids Content</b>	By Volume 57% +/- 2%
<b>Theoretical Coverage Rate</b>	914 ft <sup>2</sup> /gal at 1.0 mils (22.4 m <sup>2</sup> /l at 25 microns) 305 ft <sup>2</sup> /gal at 3.0 mils (7.5 m <sup>2</sup> /l at 75 microns) 183 ft <sup>2</sup> /gal at 5.0 mils (4.5 m <sup>2</sup> /l at 125 microns) Allow for loss in mixing and application.
<b>VOC Value(s)</b>	Per EPA Method 24: 3.0 lbs/gal (360 g/l) mixed 12 oz/gal of Thinner 254: 3.43 lbs/gal (410 g/l) 6 oz/gal of Thinner 33: 3.21 lbs/gal (385 g/l)  These are nominal values and may vary slightly with color. This product contains US EPA VOC-exempt solvent(s).
<b>Dry Temp. Resistance</b>	Continuous: 800°F (427°C) Non-Continuous: 1000°F (538°C)  *Dry temperature resistance listed above is only applicable when applied over suitable solvent-based inorganic zinc primers.
<b>Limitations</b>	DO NOT use over water-based inorganic zinc primers.

### SUBSTRATES & SURFACE PREPARATION

<b>General</b>	Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating. Refer to specific primer's Product Data Sheet for detailed requirements of the specified primer.
<b>Steel</b>	Minimum: SSPC-SP6 for zinc primer application Surface Profile: 1.0-3.0 mils (25-75 micron) Apply over properly applied and clean inorganic zinc primers. When used over Carbozinc 11 Series primers allow a minimum 2-hour cure on primer prior to topcoating.
<b>Stainless Steel</b>	Not recommended.
<b>Galvanized Steel</b>	Not recommended.

### MIXING & THINNING

<b>Mixing</b>	Power mix to a uniform consistency.
<b>Thinning</b>	May be thinned up to 5% by volume with Carboline Thinner 33 for most applications or 5-10% with Thinner 254 for hot (85 °F [29 °C]) or windy conditions.
<b>Pot Life</b>	Indefinite. Avoid moisture contamination.

### APPLICATION EQUIPMENT GUIDELINES

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

<b>Spray Application (General)</b>	The following spray equipment has been found suitable and is available from manufacturers.
<b>Conventional Spray</b>	Conventional pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, and 0.043" to 0.070" I.D. fluid tip and appropriate air cap.
<b>Airless Spray</b>	Pump Ratio: 30:1 (min.) Volume Output: 2.5 gpm min. - 11.5 l/min min. Material Hose: 3/8" I.D. min. - 9.0 mm min. Tip Size: 0.017-0.021" - 0.43-0.53mm Output Pressure: 2100-2500 psi - 135-170kg/cm <sup>2</sup>
<b>Brush</b>	For touch up use only. Use medium bristle brush and avoid re-brushing. Two coats may be required to obtain desired thickness and appearance. For best results tie-in within 5 min.

### APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	40°F (4°C)	40°F (4°C)	40°F (4°C)	30%
Maximum	90°F (32°C)	110°F (43°C)	110°F (43°C)	95%

Industry standards are for substrate temperatures during application to be 5 °F (3 °C) above the dew point. This product does not require heat-curing; but it does require moisture to complete its final cure. Use water mist if humidity is below minimums.

## CURING SCHEDULE

Surface Temp.	Dry to Touch	Dry to Handle	Cure for Service
60°F (16°C)	30 Minutes	4 Hours	36 Hours
75°F (24°C)	15 Minutes	2 Hours	18 Hours
90°F (32°C)	10 Minutes	1 Hour	12 Hours

These times are based on recommended coverage rates. Curing under low humidity conditions will extend times. Final cure will depend on humidity levels; but generally overnight cure (18-24 hours) is sufficient prior to placing in high-heat service.

## CLEANUP & SAFETY

<b>Cleanup</b>	Use Thinner 2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.
<b>Safety</b>	Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions. Use adequate ventilation. Keep container closed when not in use.
<b>Ventilation</b>	When used in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. User should test and monitor exposure levels to insure all personnel are below guidelines. If not sure or if not able to monitor levels, use MSHA/NIOSH approved supplied air respirator.

## PACKAGING, HANDLING & STORAGE

<b>Shelf Life</b>	6 months at 75 °F (24 °C) *Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.
<b>Storage Temperature &amp; Humidity</b>	40-90 °F (4-32 °C) 0-90% Relative Humidity
<b>Storage</b>	Store Indoors. KEEP DRY
<b>Shipping Weight (Approximate)</b>	1 Gallon Kit - 13 lbs (5.9 kg) 5 Gallon Kit - 65 lbs (29.5 kg)
<b>Flash Point (Setaflash)</b>	Thermaline 4000: 61 °F (19 °C) Thinner 33: 75 °F (24 °C) Thinner 2: 23 °F (-5 °C)

## WARRANTY

To the best of our knowledge the technical data contained herein is true and accurate on the date of publication and is subject to change without prior notice. User must contact Carboline Company to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. We guarantee our products to conform to Carboline quality control. We assume no responsibility for coverage, performance, injuries or damages resulting from use. Carbolines sole obligation, if any, is to replace or refund the purchase price of the Carboline product(s) proven to be defective, at Carbolines option. Carboline shall not be liable for any loss or damage. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY CARBOLINE, EXPRESS OR IMPLIED, STATUTORY, BY OPERATION OF LAW, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. All of the trademarks referenced above are the property of Carboline International Corporation unless otherwise indicated.