

Selection & Specification Data

Generic Type	Single-package silicone finish
Description	High-performance finish for areas exposed to extreme temperatures. Suitable for service from 400°F-1200°F. Color stability at maximum temperature will depend on color selected. Heat curing results in full film properties.
Features	<ul style="list-style-type: none"> ▪ Resistant to severe thermal shock ▪ Provides outstanding long-term performance when applied over Carbozinc inorganic zinc primers ▪ Air-dries to touch (see heat curing schedule) ▪ VOC Compliant
Color	Available in limited colors. Aluminum (C901) and Black (C900) are standard. Other colors are made to order.
Finish	Gloss - initial (Flat after heat curing)
Primers	Inorganic zincs or silicone zinc. None needed for stainless steel or aluminum.
Dry Film Thickness	1.5-2.0 mils (38-50 microns) 3.0-3.5 wet mils (75-88 microns) Do not exceed 2.0 mils in a single coat. 4700 VOC Aluminum: 1.5 mils (38 microns), 4.0 wet mils. Two coats are recommended over bare steel and one or two coats over inorganic zincs.
Solids Content	By Volume: 57% ± 2 By Weight: 67% ± 2 4700 VOC Aluminum by volume: 40% ± 2
Theoretical Coverage Rate	914 mil/ft ² /gal. (22 m ² /l at 25 microns) 4700 Aluminum: 642 mil/ft ² /gal. (15.8 m ² /l at 25 microns).
VOC Values EPA Method 24 (Calculated)	<u>As Supplied:</u> 2.6 lbs./gal (312 g/l) (sprayed un-thinned except in hot application) Aluminum: 2.67 lbs./gal (320 g/l) (sprayed un-thinned except in hot application) <u>Thinned:</u> 16.0 oz/gal w/#236E (12.5%) 2.6 lbs./gal (312 g/l)
Dry Temp. Resistance	Most colors to 750°F (399°C) continuous. Aluminum and black to 1000°F (538°C) with surges to 1200°F (649°C).
Limitations	<ul style="list-style-type: none"> ▪ Do not use for immersion service ▪ Do not exceed thickness recommendation. Excessive film thickness may result in blistering and delamination when the temperature is increased.

Substrates & Surface Preparation

General	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.
Steel	SSPC-SP 10 with a 0.5-1.0 (13-25 micron) surface profile. Prime with specific Carboline primers as recommended by your Carboline Sales Representative.
Stainless Steel	Sweep blast cleaning (SSPC-SP7) is recommended.
Aluminum	Sweep blast cleaning (SSPC-SP7) is recommended.

* The alignment of aluminum flakes in aluminum-filled finishes is very dependent on application conditions and techniques. Care must be taken to keep conditions as constant as possible to reduce variations in final appearance. It is also advisable to work from a single batch of material since variations can occur from batch to batch. For more information consult Carboline Technical Service Department.

Thermaline® 4700 VOC & 4700 VOC Aluminum

Application Equipment

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.

General Guidelines:

Spray Application (General) The following spray equipment has been found suitable for application of this material. Conventional spray application is preferred.

Conventional Spray Use DeVilbiss P-MBC, E-needle and tip, and a 704 air cap or equal. Use adequate air volume for proper equipment operation. Hold gun 10-12" from the surface and at right angles. Overlap each pass 50%. Apply 3.0-3.5 wet mils to obtain desired dry film. Airless not recommended.

Brush & Roller (General) Recommended for touch up of small areas or where spray application is not permitted. Avoid excessive re-brushing or re-rolling will create a non-uniform appearance.

Brush Use a medium bristle brush.

Roller Use a short-nap mohair roller cover with phenolic core.

Mixing & Thinning

Mixing Power mix until uniform in consistency. Avoid excessive air entrapment.

Thinning Normally not required. May be thinned up to 16.0 oz./gal. (12.5%) by volume with Thinner #236E for "hot" applications exceeding 150°F (66°C). Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Cleanup & Safety

Cleanup Use Thinner #2. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety Read and follow all caution statements on this Product Data Sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation 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 ensure all personnel are below guidelines. If not sure or if not able to monitor levels, use MSHA/NIOSH approved respirator.

Caution This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Normal	77°F(25°C)	125°F(52°C)	80°F(27°C)	50%
Minimum	55°F(13°C)	40°F(4°C)	40°F(4°C)	0%
Maximum	95°F(35°C)	300°F(148°C)	120°F(49°C)	90%

This product simply requires the substrate temperature to be above the dew point. Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions.

Curing Schedule

Substrate Temperature	Dry to Touch	Dry to Topcoat with Itself	Dry to Handle*	Final Cure
77°F (25°C)	1 Hour	4 Hours	8 Hours	2 Hours at 400°F

These times are based on a 2.0 mil (50 micron) dry film thickness. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discoloration. During high humidity conditions, it is recommended that the application be done while temperatures are increasing. If the final cure time is exceeded, the surface must be abraded prior to the application of additional coats.

* Dry to handle (thumb twist test). Final hardness and ultimate film properties are not reached until heat curing has been achieved. To obtain optimal properties, must be cured at 400°F. After a 2 hour flash-off at 75°F, allow temperature to increase slowly to 400°F. Hold at 350°F to 450°F for 2 hours. The coating may then be placed in service.

Packaging, Handling & Storage

Shipping Weight (Approximate)	<u>1 Gallon Kit</u> 14 lbs. (6.4 kg)	<u>5 Gallon Kit</u> 70 lbs. (32 kg)
--------------------------------------	---	--

Flash Point (Setaflash)	Thermaline 4700 VOC 87°F (31°C) Thermaline 4700 VOC Aluminum 72°F (22°C)
--------------------------------	---

Storage (General)	Store indoors
--------------------------	---------------

Storage Temperature & Humidity	Between 40°F-100°F(4°C-38°C) 0-90% Humidity
---	--

Shelf Life: 4700 VOC	24 months at 77°F (25°C)
4700 VOC Alum	12 months at 77°F (25°C)

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**



350 Hanley Industrial Court, St. Louis, MO 63144-1599
314/644-1000 314/644-4617 (fax) www.carboline.com

RPM
An Company

January 2009 replaces November 2006

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 or injuries resulting from use. Liability, if any, is limited to replacement of products. 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. Carboline® and Thermaline® are registered trademarks of Carboline Company.