

SELECTION & SPECIFICATION DATA

Generic Type	Epoxy Polyamide
Description	Carboguard 60 is a high solids, versatile, abrasion resistant, chemical resistant, and corrosion resistant coating. It can be used as a primer, intermediate coat, or self-priming finish over steel or inorganic zinc primers. May be topcoated with itself, or a broad variety of high performance finish coats. This product has excellent wetting properties giving it the capability of going over marginally prepared substrates. It is ideal for maintenance and fabrication shop applications. An optional Glass Flake (GF) additive or micaceous iron oxide (MiO) additive can be purchased separately and may be used to enhance film strength for more abusive applications for severe marine or heavy industrial uses. Consult Technical Service for suitability as a lining or other exposures.
Features	• Laboratory qualified for multiple ISO 12944 atmospheric-corrosivity categories • Low odor and low VOC • Available in a variety of rapid tint colors* • Attractive medium sheen for tank exteriors • Good chemical resistance • Used as a primer, intermediate, or finish coat • Fast cure & dry times • Can be applied over power tool cleaned surfaces • VOC compliant to current AIM regulations • Good abrasion resistance • Approved MPI #108
Color	Standard colors include: C705 (Light Grey) and S800 (White) A wide range of colors is available upon request using Carboline's Rapid Tint System (RTS). Contact your Carboline representative for RTS color availability.
Finish	Semi-Gloss
Primer	Self-priming. May be applied over organic and inorganic zinc rich primers. A mist coat may be required to minimize bubbling over zinc rich primers.
Dry Film Thickness	4 - 6 mils (102 - 152 microns) per coat as a primer or an intermediate without additives 4 - 10 mils (102 - 254 microns) per coat (2 coats) may be used direct-to-metal 8 - 12 mils (203 - 305 microns) per coat with GF or MiO additives Do not exceed 10 mils in a single coat (without additives)
Solids Content	By Volume 72% +/- 2%
Theoretical Coverage Rate	1155 ft²/gal at 1.0 mils (28.3 m²/l at 25 microns) 289 ft²/gal at 4.0 mils (7.1 m²/l at 100 microns) 96 ft²/gal at 12.0 mils (2.4 m²/l at 300 microns) Allow for loss in mixing and application.

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VOC Values	Thinner 236 E : 13 oz./gallon, 2.00 lbs./gal, 240 g/l Thinner 2 : 13 oz/gal 2.47 lbs./gal 296 g/l Thinner 33 : 15 oz/gal 2.57 lbs./gal 308 g/l As Supplied : 2.00 lbs./gal 240 g/l Thinner 2 : 6 oz/gal 2.23 lbs./gal 267 g/l
Dry Temp. Resistance	These are nominal values for the liquid components only and may vary slightly with color and with the addition of GF or MiO fillers. Use of Carboline exempt solvents (usually containing an "E") will not change the as supplied VOC value. Continuous: 300°F (149°C) Non-Continuous: 350°F (177°C) Exposure above 200°F/93°C may cause discoloration (darkening) or loss of gloss, but will not affect performance.
Limitations	• Epoxies may lose gloss, discolor and chalk when exposed to sunlight. • Additive 8505 will cause discoloration of this product, but will not affect product performance in atmospheric service.
Topcoats	May be topcoated with Acrylics, Epoxies, Alkyds, or Polyurethanes depending on exposure and need.

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	For most applications: SSPC-SP6 1.5-3.0 mils (38-75 microns) When using under fireproofing products, defer to the primer surface preparation requirements in the product data sheet of the fireproofing product.
Concrete or CMU	Concrete must be cured 28 days at 75°F (24°C) and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D4258 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require surfacing.
Previously Painted Surfaces	SSPC-SP2 or SP3
Non-Ferrous Metals	Surface profile should be a dense angular 1.5 - 3 mils and is best achieved through abrasive blasting in accordance with SSPC-SP16 for atmospheric exposure, or SSPC-SP17 for immersion environments.

PERFORMANCE DATA

All test data was generated under laboratory conditions. Field testing results may vary.

Test Method	System	Results
ASTM D2794 Impact resistance	Blasted Steel 1ct.	100 in. lbs (direct)
ASTM D3363 Pencil Hardness	Blasted Steel 1 ct.	4H-5H
ASTM D4541 Adhesion	Blasted Steel 1ct. 2ct.	(Pneumatic) 1 ct. 1500+psi 2 ct. 1500+ psi
ASTM D522 Flexibility	Blasted Steel 1 ct.	No cracking, 5/8" Conical Mandrel Bend

Data based on Carboguard 60 without filler additives.

MIXING & THINNING

Mixing

Power mix separately, then combine and power mix. Allow mixed product 15 minute sweat in time before thinning if material is under 70 °F (21 °C). No sweat in needed above 70 °F (21 °C) DO NOT MIX PARTIAL KITS. For GF or MiO additives, slowly add while mixing.

Thinning

Preferred Thinner Uses and Application:

Spray: Up to 13 oz/gal (10%) with Thinner #2.
Brush & Roller: Up to 15 oz/gal (12%) with Thinner #33.
Thinner 236E may be used as an exempt thinner.

Alternate Compatible Thinners for atmospheric service:

Carboline Thinner 2, 10, 15, 76, 225E, 229, 236E, 243E, 248 and Plasite Thinner #19 or #20

Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Ratio

- Liquid Components: 1:1 Ratio (A to B)
- Glass Flake (GF) Additive: (1.8 lbs/mixed gal)
- Micaceous Iron Oxide (MiO) Additive: (2.0 lbs/gal)

Pot Life

4 Hours at 75°F (24°C)
Pot life ends when coating loses body and begins to sag. Pot life times will be less at higher temperatures.

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.

Conventional Spray

Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, 0.070" I.D. fluid tip and appropriate air cap. For filler additives use a 0.110" I.D. fluid tip.

Airless Spray

Pump Ratio: 30:1 (min.)
GPM Output: 2.5 (min.)
Material Hose: 3/8" I.D. (min.)
Tip Size: 0.017"-0.021" (0.035"-0.041" for filler additives)
Output PSI: 2100-2500
Filter Size: 60 mesh (remove mesh for filler additives)
PTFE packings are recommended and available from the pump manufacturer.

Brush & Roller (General)

Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or re-rolling. For best results, tie-in within 10 minutes at 75°F (24°C). The addition of GF or MiO fillers is best applied by spray application.

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Brush | Use a medium bristle brush.

Roller | Use 3/8" nap roller with a solvent resistant core.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	50°F (10°C)	40°F (4°C)	40°F (4°C)	0%
Maximum	90°F (32°C)	140°F (60°C)	120°F (49°C)	85%

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

Surface Temp.	Dry to Touch	Dry to Handle/ Recoat w/ Itself	Dry to Topcoat w/ Other Finishes	Maximum Recoat Time
40°F (4°C)	3 Hours	30 Hours	48 Hours	1 Year
50°F (10°C)	2 Hours	20 Hours	24 Hours	1 Year
60°F (16°C)	1 Hour	8 Hours	10 Hours	1 Year
75°F (24°C)	45 Minutes	5 Hours	7 Hours	1 Year
90°F (32°C)	30 Minutes	3 Hours	4 Hours	1 Year

These times are based on a 5.0 mil (125 micron) dry film thickness and 50% RH. 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 and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. Recoat intervals may vary from those listed above when using under intumescent fireproofing products. Consult Carboline Technical Service for recommended cure times before applying Carboline intumescent products.

NOTE: If the maximum recoat times have been exceeded, the surface must be abraded by brush-off blast cleaning or mechanical methods prior to the application of additional coats. For force curing, contact Carboline Technical Service for specific requirements. Carboline Additive 8505 can be used to aid the film forming process in the product for temperatures down to 35 °F (1.7 °C). Carboline Additive 8505 is added at a rate of 4 oz per mixed two gallon kit or 20 oz per mixed ten gallon kit. Allow mixed product 15 minute sweat in time before thinning, if material is under 70 °F (21 °C), and 24 hrs cure prior to topcoating for surface temperatures down to 40°F (4 °C). At this addition rate, Additive 8505 will accelerate the cure rate of the epoxy product and reduce the pot life of the product.

CLEANUP & SAFETY

Cleanup | Use Thinner 2 or Acetone. 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 SDS for this product. Employ normal workmanlike safety precautions. Use adequate ventilation. Keep container closed when not in use.

CLEANUP & SAFETY

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 insure all personnel are below guidelines. If not sure or if not able to monitor levels, use MSHA/NIOSH approved respirator.
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PACKAGING, HANDLING & STORAGE

Shelf Life	Part A & B: Min. 36 months at 75 °F (24 °C) Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.
Storage Temperature & Humidity	40-100 °F (4-37.8 °C) 0-100% Relative Humidity
Storage	Store Indoors. This product is solvent based and not affected by excursions below these published storage temperatures, down to 10°F, for a duration of no more than 14 days. Always inspect the product prior to use to make sure it is smooth and homogeneous when properly mixed.
Shipping Weight (Approximate)	<u>2 Gallon Kit</u> 26 lbs. (12 kg) <u>10 Gallon Kit</u> 127 lbs. (58 kg)
Flash Point (Setaflash)	Part A: 82°F (27.8°C) Part B: 71°F (21.7°C) Mixed: 78°F (25.6°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 to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. Carboline warrants our products to be free of manufacturing defects in accord with applicable Carboline quality control procedures. THIS WARRANTY IS NOT VALID WHEN THE PRODUCT IS NOT: (1) APPLIED IN ACCORDANCE WITH CARBOLINE'S SPECIFICATIONS, AND/OR (2) PROPERLY STORED, CURED, AND USED UNDER NORMAL OPERATING CONDITIONS. Carboline assumes no responsibility for coverage, performance, injuries, or damages resulting from use of the product. If this product is found not to perform as specified upon inspection by a Carboline representative during the warranty period, Carboline's sole obligation, if any, is to replace the Carboline product(s) proven to be defective or refund the purchase price thereof, at Carboline's sole option. Carboline shall not be liable for any other losses or damages. This warranty excludes (1) labor and costs of labor for the application or removal of any product, and (2) any incidental or consequential damages, whether based on breach of express or implied warranty, negligence, strict liability or any other legal theory. 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. The whole text of this Product Data Sheet, as well as the documents derived from it, have been written in English, and for legal purposes the English version shall prevail.