

SELECTION & SPECIFICATION DATA

Generic Type	Two component, aliphatic urethane direct- to- metal (DTM) mastic
Description	Carbothane DTM Mastic is a weatherable direct- to -metal or finish coat with surface tolerant properties for maintenance coating applications. It is a high solids, high gloss, buildable, two component polyurethane coating that adheres to tightly bound rust, bare metal, aged coatings and other surfaces. Carbothane DTM Mastic exhibits excellent dry times and handling characteristics. It has surface tolerant properties for ease of use and reduced prep time. This coating has outstanding hardness, adhesion and resistance to impact, marring, abrasion, chemicals and staining.
Features	• Surface tolerant properties including tightly bound rust • Weatherable, UV stable urethane chemistry • Exceeds SSPC Paint 36 Level 3A • Meets ISO 12944-6 C3 Medium over prepared steel • VOC compliant – 2.0 lbs/gal (245 g/l) as supplied • Direct-To-Metal (DTM) • Excellent abrasion resistance and chemical resistance • Application by conventional, airless spray, brush and roll • Ambient air dry • Suitable for USDA inspected facilities
Color	1864 (White) and RTS bases. Other colors are available on request. Contact your Carboline Representative for availability
Finish	High Gloss
Primer	Self-priming. May be applied over tightly adherent existing coatings including zinc, epoxy, and urethanes.
Dry Film Thickness	3 - 5 mils (76 - 127 microns) per coat
Solids Content	By Volume 71% +/- 2%
Theoretical Coverage Rate	1139 ft ² /gal at 1.0 mils (27.9 m ² /l at 25 microns) 380 ft ² /gal at 3.0 mils (9.3 m ² /l at 75 microns) 228 ft ² /gal at 5.0 mils (5.6 m ² /l at 125 microns) Allow for loss in mixing and application.
VOC Value(s)	Per EPA Method 24: 2.0 lbs/gal (245 g/L) 6 oz/gal of Thinner 214: 2.25 lbs/gal (270 g/L) 12 oz/gal of Thinner 236E: 2.0 lb/gal (245 g/L)
Dry Temp. Resistance	Continuous: 200°F (93°C) Non-Continuous: 250°F (121°C) Discoloration is observed above 180°F (82°C).

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. Will adhere to tightly bound rust and existing coatings including alkyd, epoxy, acrylic, and urethane.
Steel	For maximum performance, abrasive blast to a commercial finish in accordance with SSPC-SP6 and obtain a 1½ - 2 mil (35-50 micron) blast profile. Will adhere to tightly bound rust.

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SUBSTRATES & SURFACE PREPARATION

Rusted Steel	Minimum prep for rusted carbon steel is SSPC- SP 2 or SSPC- SP 3. NACE No. 4/SSPC- SP 7, NACE/SSPC WJ- 1 to WJ- 4 or SSPC- SP 14 are also acceptable methods. Remove loose rust, dirt and oils in accordance with SSPC- SP 2 or SSPC- SP 3 as minimum. Surface must be clean and dry.
Previously Painted Surfaces	Clean and lightly sand or abrade to roughen and degloss the surface. Existing coating must attain a minimum 3A rating in accordance with ASTM D3359 adhesion test.
Non-Ferrous Metals	Surface profile should be a dense angular 1.5 - 2 mils and is best achieved through abrasive blasting in accordance with SSPC-SP16.

TYPICAL CHEMICAL RESISTANCE

Exposure	Fumes	Splashes & Spills
Acids	Excellent	Very Good
Alkalies	Excellent	Very Good
Salt	Excellent	Excellent
Solvents	Excellent	Very Good
Water	Excellent	Excellent

Discoloration upon exposure may occur with certain colors.

Resistance may vary dependent on the type of solvent.

MIXING & THINNING

Mixing	For batch mixing, power mix part A separately, then combine with part B and power mix thoroughly in the following proportions: THIS PRODUCT IS MOISTURE SENSITIVE. AVOID MOISTURE CONTAMINATION. DO NOT MIX PARTIAL KITS.
Thinning	Not normally required. Preferred Thinner Uses and Application Spray: Up to 6 oz/gal (5%) with Thinner 214. Thinner 76 may also be used. Brush and Roller: Thinner 97 or 214 Thinner 236E may be used as an exempt thinner. Alternate Compatible Thinners for Atmospheric Service Thinner 76. For warm or hot surfaces, Thinner 229, 230 or 235 may be used. 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	4:1 Ratio (A to B) Part A (Carbothane DTM Mastic): 4 parts Part B (Carbothane 8843 Converter): 1 part 1 Gallon Kit Part A (Carbothane DTM Mastic): 0.8 gallons (in 1 gallon can) Part B (Urethane Converter 8843): 25.6 fluid oz 5 Gallon Kit Part A (Carbothane DTM Mastic): 4 gallons (in 5 gallon can) Part B (Urethane Converter 8843): 1 gallon
Pot Life	90 min at 75°F (24°C) unthinned. Pot life decreases at higher temperatures. Pot life ends when coating becomes too viscous to use. This product is moisture sensitive. 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.

Spray Application (General) | The following spray equipment has been found suitable and is available from manufacturers.

Conventional Spray | Pressure pot equipped with dual regulators, 3/8" (0.95 cm) I.D. minimum material hose, 0.070" (0.18 cm) I.D. fluid tip and appropriate air cap.

Airless Spray | Pump Ratio: 45:1 (min.)*
GPM Output: 3.0 (min.)
Material Hose: 3/8" (0.95 cm) I.D. (min.)
Tip Size: 0.013-0.017" (0.03-0.04 cm)
Output PSI: 3500- 4000
Filter Size: 60 mesh
*PTFE packings are recommended and available from the pump manufacturer.

Brush & Roller (General) | Suitable for brush and roll.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	50°F (10°C)	35°F (2°C)	35°F (2°C)	10%
Maximum	130°F (54°C)	155°F (68°C)	95°F (35°C)	80%

Industry standards are for substrate temperatures to be 5°F (3°C) above the dew point.

Caution: This product is moisture sensitive in the liquid stage and until fully cured. Protect from high humidity, dew and direct moisture contact until fully cured. Application and/or curing in humidities above maximum, or exposure to moisture from rain or dew may result in loss of gloss and/or microbubbling of the product.

CURING SCHEDULE

Surface Temp.	Dry to Touch	Dry to Handle	Final Cure	Minimum Recoat Time
50°F (10°C)	2 Hours	9 Hours	10 Days	21 Hours
75°F (24°C)	90 Minutes	6 Hours	7 Days	14 Hours
90°F (32°C)	60 Minutes	4 Hours	5 Days	9 Hours

These are minimum times are based on a 4.0 mil (100 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.

Carboline Additive 8509 can be used to accelerate the film forming process in this product for conditions outside of the parameters of this data sheet. Carboline Additive 8509 is added at a rate of up to 1 oz per mixed gallon or up to 5 oz per mixed five gallons. At this addition rate, Additive 8509 will accelerate the cure rate of the urethane product between 25-40% depending on the substrate temperature range and reduce the pot life of the product by approximately 40-50% of that stated on the product data sheet. With the use of Additive 8509, this product will continue to cure at temperatures as low as 20°F (-7°C).

Maximum recoat times are indefinite. Surface must be clean and dry. As part of good painting practice it is recommended to test for adhesion by wiping the surface with Thinner 214. If the film shows a slight "tack" the surface is suitable for recoating without extensive surface preparation such as abrading.

CLEANUP & SAFETY

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

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CLEANUP & SAFETY

Safety	Read and follow all caution statements on this product data sheet and on the SDS 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 insure all personnel are below guidelines. If not sure, use MSHA/NIOSH approved supplied air 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 nonferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Packaging	1 Gallon Kit Part A (Carbothane DTM Mastic): 0.8 gallons (in 1 gallon can) Part B (Urethane Converter 8843): 25.6 fluid oz 5 Gallon Kit Part A (Carbothane DTM Mastic): 4 gallons (in 5 gallon can) Part B (Urethane Converter 8843): 1 gallon
Shelf Life	Part A: Min. 24 months at 75°F (24°C) Part B: Min. 24 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° - 110°F (4-43°C) 0-80% Relative Humidity
Storage	Store Indoors
Shipping Weight (Approximate)	1 Gallon Kit 11 lbs. (5 kg) 5 Gallon Kit 56 lbs. (25 kg)
Flash Point (Setaflash)	Part A: 81°F (27°C) Part B: 62°F (17°C) Thinner 236E: 109°F (38°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.