

SELECTION & SPECIFICATION DATA

Generic Type	Aliphatic Acrylic-Polyester Polyurethane
Description	High build, low sheen finish that has excellent resistance to corrosion, chemicals and abrasion. Suitable for application over a number of Carboline primers and intermediates, this material provides very good weathering performance in a broad range of colors.
Features	<ul style="list-style-type: none"> • Outstanding performance properties in both mild and aggressive environments • High build; suitable for many two-coat systems • Suitable for application direct to inorganic zincs • Application by spray, brush or roller • Indefinite recoatability • VOC compliant to current AIM regulations
Color	1864 (White), 6666 (Safety Yellow), 5555 (Safety Red), C703 (Grey), C705 (Light Grey), C900 (Black). Other colors are available on request. Contact your Carboline Representative for availability
Finish	Satin
Primer	Refer to Substrates & Surface Preparation. Topcoat with Carbothane® Clear Coat when required.
Dry Film Thickness	3 - 5 mils (76 - 127 microns) per coat Dry film thickness in excess of 7 mils (175 microns) per coat is not recommended.
Solids Content	By Volume 57% +/- 2%
Theoretical Coverage Rate	914 ft²/gal at 1.0 mils (22.4 m²/l at 25 microns) 305 ft²/gal at 3.0 mils (7.5 m²/l at 75 microns) 183 ft²/gal at 5.0 mils (4.5 m²/l at 125 microns) Allow for loss in mixing and application.
VOC Values	Thinner 25 : 11 oz/gal: 3.5 lbs./gal (420 g/l) Thinner 25 : 18 oz/gal: 3.7 lbs./gal (449 g/l) As Supplied : 3.2 lbs./gal (383 g/l) Thinner 214 : 3.3 lbs/gal (403 g/l) Thinner 241 : 3.5 lbs/gal (423 g/l) 1.5 oz/gal of Additive 101 adds 0.08 lbs/gal (10 g/l). These are nominal values and may vary slightly with color.
Dry Temp. Resistance	Continuous: 300°F (149°C) Some discoloration and loss of gloss may be experienced at elevated temperatures.
Limitations	*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.

Carbothane® 133 HB

PRODUCT DATA SHEET



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. Refer to the specific primer's Product Data Sheet for detailed requirements of the specified primer.
Steel	SSPC-SP6 with a 1.5-2.5 mil (37.5-62.5 micron) surface profile for maximum protection. SSPCSP2 or SP3 as minimum requirement. Prime with specific Carboline primers as recommended by your Carboline sales representative.
Galvanized Steel	Prime with specific Carboline primers as recommended by your Carboline Sales Representative. Refer to the specific primer's Product Data Sheet for substrate preparation requirements.
Aluminum	SSPC-SP1 and prime with appropriate Carboline primer as recommended by your Carboline sales representative.
Previously Painted Surfaces	Lightly sand or abrade to roughen and degloss the surface. Existing paint must attain a minimum 3A rating in accordance with ASTM D3359 "X-Scribe" adhesion test. Prime with specific Carboline primers as recommended by your Carboline sales representative.

PERFORMANCE DATA

Test Method	System	Results
ASTM B117 Salt Fog	Blasted Steel 1 ct. IOZ 1 ct. 133 HB	No rusting, or blistering on plane or scribe 2,000 hours
ASTM B117 Salt Fog	Blasted Steel 1 ct. OZ 1 ct. 133 HB	No rusting, or blistering on plane or scribe 4,000 hours
ASTM D1735 Water Fog	Blasted Steel 1 ct. Epoxy 1 ct. 133 HB	No rusting or blistering after 8600 hours.
ASTM D4213 Scrub Resistance	1 ct. 133 HB	.0027 microliters erosion rate after 100 cycles with abrasive scrub medium.
ASTM D4585 Humidity	Blasted Steel 1 ct. IOZ 1 ct. 133 HB	No rusting or blistering after 3000 hours.
ASTM D5894 QUV A Prohesion	1 ct. 133 HB	No effect on plane area and 78% gloss retention after 1008 hours of wet/dry salt fog cycle
ASTM G26 Weatherometer	Blasted Steel 1 ct IOZ 1 ct. 133 HB	No blistering, rusting or cracking after 3500 hours
ASTM G53 QUV (2500 hours w/ UVA 340 bulb)	Blasted Steel 1 ct. Epoxy 1 ct. 133 HB	Color change less than 2 McAdam units; no blistering, rusting, cracking or chalking.
Graffiti Resistance	Blasted Steel 1 ct. Epoxy 1 ct. 133 HB	All markings and stains removed by solvent after exposure to: shoe polish, Sharpie marker, crayon, I

Test reports and additional data available upon request.

MIXING & THINNING

Mixing	Power mix Part A separately, then combine with Part B and power mix. DO NOT MIX PARTIAL KITS.
Thinning	Spray: Up to 11 oz/gal (9%) w/ Thinner 25. Roller: Up to 18 oz/gal (14%) w/ Thinner 25. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied. Thinner 214 may also be used, up to 6 oz/gal, for either spray or brush/roller application. Carboline Thinner 236E may also be used to minimize HAP and VOC emissions.

MIXING & THINNING

Ratio	6:1 Ratio (A to B) .88 Gal. Kit Part A: 1 gal. can (partial filled) UC 133: 1 pint
	5.0 Gal. Kit Part A: 5 gal. can (partial filled) UC 133: 1 gallon can (partial filled)
Pot Life	4 Hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating becomes too viscous to use. MOISTURE CONTAMINATION WILL SHORTEN POT LIFE AND CAUSE GELLATION.

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)	This is a high solids coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.
Conventional Spray	Pressure pot equipped with dual regulators 3/8" I.D. minimum material hose .070" I.D. fluid tip and appropriate air cap
Airless Spray	Pump Ratio: 30:1 (min.)* GPM Output: 3.0 (min.) Material Hose: 3/8" I.D. (min.) Tip Size: .013-.015" Output PSI: 2100-2300 Filter Size: 60 mesh *Teflon 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 rerolling. For best results, tie-in within 10 minutes at 75°F (24°C).
Brush	Recommended for touch-up only. Use a medium, natural bristle brush.
Roller	Use a medium-nap synthetic roller cover with phenolic core.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	40°F (4°C)	40°F (4°C)	40°F (4°C)	0%
Maximum	100°F (38°C)	110°F (43°C)	110°F (43°C)	90%

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

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

CURING SCHEDULE

Surface Temp.	Dry to Handle	Dry to Recoat	Final Cure General
40°F (4°C)	20 Hours	20 Hours	28 Days
50°F (10°C)	12 Hours	12 Hours	14 Days
75°F (24°C)	5 Hours	5 Hours	7 Days
90°F (32°C)	1 Hour	1 Hour	4 Days

These times are based on a 3.0-5.0 mil (75-125 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.

***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 25. If the film shows a slight "tack" the surface is suitable for recoating without extensive surface preparation such as abrading.

Carboline Additive 101 can be used to accelerate the film forming process in this product for conditions outside of the parameters of this data sheet. Carboline Additive 101 is added at a rate of 1.0-2.0 oz per mixed gallon or a maximum of 6 oz per mixed five gallons. At this addition rate, Additive 101 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 101, this product will continue to cure at temperatures as low as 20°F (-7°C).

CLEANUP & SAFETY

Cleanup	Use Thinner 2 or Acetone. In case of spillage, 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 and use personal protective equipment as directed.
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 able to monitor levels, use MSHA/NIOSH approved supplied air respirator.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: Min. 36 months at 75°F (24°C) Part B: Min. 24 months at 75°F (24°C) *Shelf Life: when kept at recommended storage conditions and in original unopened containers.
Storage Temperature & Humidity	40° -110°F (4°-43°C) 0-90% 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)	.875 Gallon Kit - 11 lbs. (5 kg) 5 Gallon Kit - 64 lbs. (29 kg)
Flash Point (Setaflash)	Part A: 95°F (35°C) Part B: 91°F (33°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.