Carbothane® 134 HG Aluminum

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Aliphatic Acrylic Polyurethane
Description	Thin film, high gloss finish with exceptional weathering performance characteristics. Used extensively in virtually all industrial markets, 134 HG provides a smooth, durable finish that has superior resistance to corrosion, abrasion and chemical exposure.
Features	• High solids, low VOC content • Excellent weatherability • Available in metallic-pigmented colors • Excellent flow characteristics allow for application by spray or roller • Superior impact and abrasion resistance • Indefinite recoatability • VOC compliant to current AIM regulations
Color	M72N (Aluminum). Other limited metallic colors available by special order
Finish	Gloss
Primer	Refer to Substrates & Surface Preparation.
Dry Film Thickness	2 - 3 mils (51 - 76 microns) per coat
Solids Content	By Volume 70% +/- 2%
Theoretical Coverage Rate	1123 ft²/gal at 1.0 mils (27.6 m²/l at 25 microns) 561 ft²/gal at 2.0 mils (13.8 m²/l at 50 microns) 374 ft²/gal at 3.0 mils (9.2 m²/l at 75 microns) Allow for loss in mixing and application.
VOC Values	**As Supplied** : 2.2 lbs./gal (264 g/l) Thinner 214 : 25 oz/gal 2.9 lbs./gal (348 g/l) Thinner 215 : 25 oz/gal 3.0 lbs./gal (362 g/l) Thinner 25 : 25 oz/gal 3.06 lbs./gal (366 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. For more information consult Carboline Technical Service Department.
Topcoats	Carbothane® 134 Clear Coat is recommended for all metallic finishes

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. For all surfaces prime with specific Carboline primer as recommended by your Carboline sales representative. Refer to the specific primer's Product Data Sheet for detailed requirements.

SUBSTRATES & SURFACE PREPARATION

Galvanized Steel	Prime with specific Carboline primer as recommended by your Carboline Sales Representative. Refer to the specific primer's Product Data Sheet for substrate preparation requirements.
Previously Painted Surfaces	Lightly sand to roughen and degloss the surface. Existing paint must attain a minimum 3A rating in accordance with ASTM D3359 "XScribe" adhesion test.

PERFORMANCE DATA

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

Test Method	System	Results
ASTM B117 Salt Fog	Blasted Steel 1 ct Org Zinc 1 ct. Epoxy 1 ct 134 HG	No rusting, blistering, loss of bond or any measurable creepage from the scribe after 3000 hours.
ASTM D2794 Impact Resistance	Blasted Steel 1 ct 134 HG	155 inch-pounds; no visible cracking. Gardner Impact Tester
ASTM D3359 Adhesion	Blasted Steel 1 ct. Epoxy 1 ct 134 HG	5A
ASTM D3363 Hardness	Blasted Steel 1 ct Epoxy 1 ct 134 HG	H
ASTM D4060 Abrasion	Blasted Steel 1 ct 134 HG	70 mg. loss after 1000 cycles, CS17 wheel, 1000 gm. load
ASTM D4541 Adhesion	Blasted Steel 1 ct. Epoxy 1 ct. 134 HG	2562 psi Pneumatic
ASTM D870 Immersion Resistance	Blasted Steel 1 ct. Org. Zinc 1 ct Epoxy 1 ct 134 HG	No rusting in the scribe; no blistering, softening or discoloration either 30 days of soft water imm
ASTM G26 Weatherometer	Blasted Steel 1 ct. Epoxy 1 ct. 134 HG	No blistering, rusting or cracking; gloss retention of 85%; color change of 1 McAdam unit after 2000
ASTM G53 ASTM D4587 Accelerated Weathering	Blasted Steel 1 ct. Org. Zinc 1 ct. Epoxy 1 ct. 134 HG	No rusting, blistering or loss of adhesion; less than 5% gloss loss after 3000 hours

Performance shown is based on Carbothane 134 HG.

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 25 oz/gal (20%) w/ Thinner 214 or 25 Brush: Up to 25 oz/gal (20%) w/ Thinner 215 Roller: Up to 25 oz/gal (20%) w/ Thinner 215 Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied. Carboline Thinner 236E may also be used to minimize HAP and VOC emissions.
Ratio	4:1 Ratio (A to B)
Pot Life	4 Hours at 75°F (24°C) and less at higher temps. 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. Spray equipment 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: .015-.017" Output PSI: 2100-2400 Filter Size: 60 mesh *Teflon packings are recommended and available from the pump manufacturer.
Brush & Roller (General)	Not recommended due to misalignment of aluminum flakes typically achieved if brushed or rolled. Avoid re-brushing or re-rolling. For best results, tie-in within 10 minutes at 75°F (24°C).

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	50°F (10°C)	35°F (2°C)	35°F (2°C)	0%
Maximum	100°F (38°C)	120°F (49°C)	95°F (35°C)	80%

Industry standards are for substrate temperatures to be above 5°F (3°C) the dew point. Caution: This product is moisture sensitive in the liquid stage and until fully cured. Protect from high humidity, dew and moisture contact until fully 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 & Topcoat w/ other finishes	Final Cure General
35°F (2°C)	36 Hours	36 Hours	14 Days
50°F (10°C)	16 Hours	16 Hours	10 Days
75°F (24°C)	8 Hours	8 Hours	7 Days
90°F (32°C)	4 Hours	4 Hours	5 Days

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.
***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 or 215. 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 respirator.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: Min. 24 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) 0-80% 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)	1 Gallon Kit - 13 lbs (5kg) 5 Gallon Kit - 57 lbs (26 kg)
Flash Point (Setaflash)	Carbothane 134 HG Part A: 50°F (10°C) Urethane Converter 811 Part B: 127°F (53°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.