Carbothane® 133 FC

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Aliphatic Acrylic-Polyester Polyurethane
Designation	**This is a Carboline Specialty Product** Minimum order quantities and special pricing will apply in North America. Contact your Carboline Sales Representative for more details.
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	• Outstanding performance properties in both mild and aggressive environments • Fast cure • 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 • Contains no reportable HAP's
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	Carbozinc, Carboguard and Carbomastic or other primers as specified. Refer to Substrates & Surface Preparation.
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 61% +/- 2%
Theoretical Coverage Rate	978 ft²/gal at 1.0 mils (24.0 m²/l at 25 microns) 326 ft²/gal at 3.0 mils (8.0 m²/l at 75 microns) 196 ft²/gal at 5.0 mils (4.8 m²/l at 125 microns) Allow for loss in mixing and application.
VOC Values	Thinner 25 : 4 oz/gal: 2.8 lbs./gal (340 g/l) Thinner 225 E : 13 oz/gal: 2.7 lbs./gal (324 g/l) Thinner 243 E : 13 oz/gal: 2.7 lbs./gal (324 g/l) Thinner 236 E : 13 oz/gal: 2.7 lbs./gal (324 g/l) **As Supplied** : 2.7 lbs./gal (324 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.
Topcoats	May be topcoated with Carbothane Clear Coat if desired.

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.

MIXING & THINNING

Mixing	Power mix Part A separately, then combine with Part B and power mix. DO NOT MIX PARTIAL KITS.
Thinning	Thinning not normally required. Thinner 225E, 236E or 243E may be used to thin this product to minimize HAP and VOC emissions. Thinner 25 may also be used. See "VOC values" or Consult Carboline Technical Services for guidance. 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) **1.0 Gal. Kit** Part A: 1 gal. can (partial filled) UC 8800: 1 qt. (partial filled) **5.0 Gal. Kit** Part A: 5 gal. can (partial filled) UC 8800: 1 gallon can (partial filled)
Pot Life	2 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.

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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 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).
Brush	Recommended for touch-up only. Use a medium, natural bristle brush.
Roller	Use a medium-nap synthetic roller cover with a solvent resistant 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)	15 Hours	18 Hours	28 Days
50°F (10°C)	8 Hours	10 Hours	14 Days
75°F (24°C)	3 Hours	4 Hours	7 Days
90°F (32°C)	1.5 Hours	1.5 Hours	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.

CLEANUP & SAFETY

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

CLEANUP & SAFETY

Safety	Read and follow all caution statements on the data sheet and SDS for this product.
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. 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) 0-90% Relative Humidity
Shipping Weight (Approximate)	1 Gallon Kit - 15 lbs. (7 kg) 5 Gallon Kit - 70 lbs. (32 kg)
Flash Point (Setaflash)	Part A: 68°F (20°C) Part B: 28°F (-2°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.