

Selection & Specification Data

Generic Type	Cycloaliphatic (MIO) Amine Epoxy
Description	Thermaline 451 is a (MIO) flake filled cycloaliphatic amine cured epoxy phenolic novolac. This product has been formulated for use in immersion service in water and hydrocarbons such as fuel oil, diesel fuel, and gasoline. It may also be used under thermal insulation at elevated temperatures. Thermaline 451 has been modified with micaceous iron oxide (MIO) to provide excellent edge protection, one coat high build application properties, high temperature resistance and reinforced film properties. This product is self priming and resistant to 425°F- 450°F.
Features	<ul style="list-style-type: none"> ▪ Extreme chemical resistance ▪ Excellent thermal shock resistance ▪ Excellent internal film reinforcement ▪ Excellent edge protection ▪ Excellent abrasion/impact resistance
Color	Grey only
Finish	Semi Gloss
Primers	This product may be applied directly to steel and concrete surfaces.
Topcoats	Normally not required
Dry Film Thickness	7.0-9.0 dry mils (Do not apply over 9.0 mils for service above 300°F)
Solids Content	By Volume: 76 ± 2% mixed
Theoretical Coverage Rate	152 ft ² @8 mils dft.
VOC Values	As supplied: 1.69 lbs/gal (203 g/l)
Dry Temp. Resistance	425°F (constant), 450°F (intermittent)
Recommended Spread Rate	125-160 ft ² /gal (10.0-13.0 wet mils)

Substrates & Surface Preparation

General	All surfaces must be thoroughly cleaned to remove dirt, grease, mill scale, loose rust, and any other contaminants that can reduce adhesion via SSPC-SP1 solvent cleaning before proceeding with recommended surface preparation.
Metal	For maintenance work hand tool clean per SSPC-SP2, Sandblasting is recommended to remove rust and mill scale. Use commercial blast to SSPC-SP6 for mild exposures and near white blast SSPC-SP10 for severe exposures or immersion service.
Concrete or Concrete Block	Prep to SSPC-SP13, masonry surfaces must cure for at least 30 days at 70°F before painting. Remove loose or excess mortar, efflorescence, laitance and concrete form release compounds. Etch or abrasive blast slick or glazed, or powdery concrete.
Previously Painted Surfaces	If the paint is glossy, sand to dull the surface. Apply test areas, allow to cure and test for adhesion and compatibility with existing coatings. Scrape loose, scaly or peeling paint and sand the edges smooth. Remove rust and scale from ferrous metal. IF mildew is present, remove completely by sterilizing the surface with mildew remover and detergent. Rinse well and allow to dry before painting.

Special Information:

Do not apply if material, substrate or ambient temperature is below 50°F or above 120°F. Old coatings should be tested for lifting before applying Thermaline 451. If substrate temperatures are above 100°F for more than 72 hours, pretreatment may be required before an addition coat of Thermaline 451 is applied. When recoating beyond 1 month, additional surface preparation may be required. Spread rates are based on volume solids and do not take in to account loss factors, porosity or roughness of the surface being coated, application tools, techniques or any other variables. Relative humidity 85% maximum.

Application Equipment

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.

General Guidelines:

Conventional Spray Binks Model 95 spray gun or equal, reduce coating as needed up to 10% by volume if allowable. Fluid nozzle 66, air nozzle 66PR, 65-80 psi atomizing air pressure, 15-25 psi fluid pressure.

Airless Spray Apply using a 45:1 pump at 3600 psi minimum.

Material Hose: 3/8 – 1/2" x 100; max
Tip Size: .019-.021"
High Pressure Filter: 30 mesh

Brush Apply using a natural bristle brush.

Roller Roll using a 3/8" Phenolic core cover. Keep roller wet. Roll in one direction, rewet, then cross roll.

Mixing & Thinning

Mixing Thoroughly stir each component. Pour component B into component A (mixing ratio by volume: 4 parts component A, to 1 part component B). Mix well with a drill type mechanical mixer. No induction time is necessary. Do not mix more than can be applied within the specified pot life at the given temperature; allow additional time to clean lines and equipment.

Thinning Thin up to 10% by volume with Thinner 2. Thin only if allowed by local air quality and air pollution regulations.

Pot Life 2 hours @75°F

Cleanup & Safety

Cleanup Clean up all tools and equipment promptly with Thinner 2. Flush out all spray tips, fluid lines and pressure pots immediately after use.

Safety Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Use adequate ventilation and wear gloves or use protective cream on face and hands if hypersensitive. Keep container closed when not in use.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Set to Touch	Set to Handle	Set to Recoat	Dry Hard
50°F (10°C)	5.5 hours	18 hours	48 hours min, 1 month max	20 days
75°F (24°C)	3 hours	7 hours	18 hours, 1 month max	7 days
100°F (38°C)	1 hour	2 hours	5.5 hours, 1 month max	3 days

Dry times are calculated with a 12.0 mil wet film @ 50% relative humidity. Expect longer dry times in periods of higher humidity or lower temperatures or when applying thicker films. If the maximum recoat window is exceeded the film must be mechanically abraded before recoating.

Packaging, Handling & Storage

Shipping Weight (Approximate) **5 Gal Kit**
77 lbs (35 kg)

Flash Point (Setaflash) Part A: 89°F
Part B: >200°F

Storage (General) Store in protected, dry area.

Storage Temperature & Humidity 40-110°F; 0-90% RH

Shelf Life Part A: 24 months @75°F
Part B: 24 months @75°F

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**



350 Hanley Industrial Court, St. Louis, MO 63144-1599
314/644-1000 314/644-4617 (fax) www.carboline.com

An **RPM** Company

July 2007 N

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 or injuries resulting from use. Liability, if any, is limited to replacement of products. 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. Carboline® and Carbocrylic® are registered trademarks of Carboline Company.