

SELECTION & SPECIFICATION DATA

Generic Type	Amine-cured, modified epoxy phenolic
Description	Highly cross-linked coating with exceptional chemical resistance. Widely used as a tank lining system in the petrochemical industry as well as in other aggressive immersion conditions like jet fuel, municipal and industrial wastewater.
Features	<ul style="list-style-type: none"> • Excellent chemical resistance • Very good abrasion resistance and flexibility • Tested and approved for use as a tank lining for all aviation fuels; reference Air BP Technical Approvals Equipment & Materials manual • Meets all performance requirements of: DOD-P-23236 Type 1, Class 1 Phenoline 187 Primer & 187 Finish system • Under insulation performance to 204°C (400°F)
Colour	<ul style="list-style-type: none"> • Primer: Red • Finish: Grey
Finish	Flat (0-10)
Primer	Normally used as a Phenoline 187 Primer & Phenoline 187 Finish system. Phenoline 187 Finish may also be used in a two coat self-priming system.
Film Build	<p>Primer or Finish</p> <ul style="list-style-type: none"> • Optimum: 125 microns per coat • Range: 100-150 microns per coat <p>An additional coat of 187 Finish may be used to meet specifications or increase service life</p>
Solid(s) Content	<ul style="list-style-type: none"> • Primer: 65% ± 2% by volume • Finish: 63% ± 2% by volume
Coverage Rate	<p>Primer:</p> <ul style="list-style-type: none"> • 6.5 m² per litre at 100 microns DFT • 4.3 m² per litre at 150 microns DFT <p>Finish:</p> <ul style="list-style-type: none"> • 6.3 m² per litre at 100 microns DFT • 4.2 m² per litre at 150 microns DFT <p>Allow for losses in mixing and application.</p>
VOC Value(s)	<ul style="list-style-type: none"> • Primer: 300 g/l as supplied • Finish: 312 g/l as supplied
Under Insulation Resistance	<p>Continuous: 204°C (399°F) Non-Continuous: 218°C (424°F)</p> <p>Discolouration and loss of gloss is observed above 93°C (200°F).</p>
Limitations	<ul style="list-style-type: none"> • Do not use in water immersion over 54°C (130°F). • Epoxies lose gloss, discolour and eventually chalk in sunlight exposure. • Linings exposed to cargos warmer than the outside steel temperature are subject to a “cold-wall” effect. The smaller the temperature differential, the less negative influence on performance.

Phenoline 187 Primer & Finish

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.
Steel	For <u>optimum performance & Immersion Service</u> : Abrasive blast to SSPC SP10 (AS1627.4 Class 2½) and achieve a uniform jagged blast profile of 50µm (minimum) and up to 75µm. For <u>general commercial work</u> : Abrasive blast to a minimum SSPC SP6 (AS 1627.4 Class 2) and achieve a uniform jagged blast profile of 50µm (minimum) and up to 75µm
Concrete	All services: Concrete must be cured 28 days at 24°C and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D4258-92 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require surfacing.
Stainless Steel	Surface profile should be a dense angular 50-63 microns profile and is best achieved through abrasive blasting. Remove all surface contaminants that would interfere with the performance of stainless steel for the intended service such as, but not limited to, embedded iron or chlorides.

PERFORMANCE DATA

Test Method	System	Results
ASTM B117 Salt Spray	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	No blistering, rusting, cracking, or delamination; less than 1/16" rust creepage at the scribe at 1000 hours.
ASTM D1653 Permeability Method B Condition C	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	Permeability .0076; WVP: 0.29 metric perms, 0.44 perms; MVT 5.72
ASTM D2794 Gardner Impact	Blasted Steel 1 ct. 187 Primer 1 ct. 187 Finish 180 inch lbs	Direct Impact: 5/16 inch diameter Reverse Impact: 1/16 inch diameter
ASTM D4060 Abrasion	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	163.3 mg loss CS17 Wheel 1000 gm load 1000 cycles
ASTM D4541 Adhesion (Elcometer)	Blasted Steel 1 ct. 187 Primer 1 ct. 187 Finish	840 psi
ASTM D522 Mandrel Bend test for Flexibility	Blasted Steel 1 ct 187 Primer 1 ct 187 Finish	26.4%-Actual average maximum elongation.

The Performance Data above is a Phenoline 187 Primer and Phenoline 187 Finish system. Test reports and additional data are available upon written request.

MIXING & THINNING

Mixing	Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS.
Thinning	May be thinned up to 12.5% with Thinner #2. In hot or windy conditions, may be thinned up to 12.5% with Thinner #33. 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)

MIXING & THINNING

Pot Life | 4 Hours at 24°C
Pot life ends when coating loses body and begins to sag. Pot life times will be less at higher temperatures.

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 have been found suitable.

Conventional Spray | Pressure pot equipped with dual regulators, 9.5 mm (3/8") I.D. minimum material hose, 1.8 mm (.070") I.D. fluid tip and appropriate air cap.

Airless Spray | Pump Ratio: 30:1 (min.)*
Output: 12 litres/minute (min.)
Material Hose: 9.5 mm (3/8" I.D.) (min.)
Tip Size: .015-.019"
Output PSI: 2100-2300
Filter Size: 60 mesh
PTFE packings are recommended and available from the pump manufacturer.

Brush & Roller (General) | Not recommended for tank lining applications except when striping welds and touching up.

Brush | Use a medium bristle brush.

Roller | Use a short-nap solvent resistant roller.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	13°C (55°F)	10°C (50°F)	10°C (50°F)	0%
Maximum	32°C (90°F)	43°C (110°F)	38°C (100°F)	85%

This product simply requires the substrate temperature to be above the dew point. Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions.

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CURING SCHEDULE

Surface Temp.	Final Cure Immersion	Maximum Recoat Time	Minimum Recoat Time
10°C (50°F)	NR	30 Days	4 Days
16°C (60°F)	30 Days	30 Days	2 Days
24°C (75°F)	15 Days	15 Days	24 Hours
32°C (90°F)	7 Days	7 Days	12 Hours

These times are based on a 100-150 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. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discolouration and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. If the maximum recoat time is exceeded, the surface must be abraded by sweep blasting or thorough abrasion prior to the application of additional coats. ***Note:** Final cure temperatures below 16°C are not recommended for tank linings.

Force Curing: Force curing is beneficial to the performance of all tank linings, especially for storage of food grade products. The following schedule may be used to force cure the coating system after the final coat is applied. Cure @ 24°C for 4 hours followed by 8 hours @ 65°C. Elevate temperature no more than 20°C every 30 minutes.

Final cure requirement varies depending upon exposure. Contact Carboline Technical Service for additional force curing and safety information.

CLEANUP & SAFETY

Cleanup	Use Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.
Safety	Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions including personnel protection equipment.
Ventilation	When used as a tank lining or 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 vapour concentration from reaching the lower explosion limit for the solvents used. In addition to ensuring proper ventilation, appropriate respirators must be used by all application personnel.
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 local electrical code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Shelf Life	<ul style="list-style-type: none">• Part A: 36 months at 24°C• Part B: Min. 36 months at 24°C <p>*Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.</p>
Shipping Weight (Approximate)	5 litre Kit - 8 kg
Storage Temperature & Humidity	4°-43°C 0-90% Relative Humidity
Flash Point (Setaflash)	Part A: 19°C Part B: 20°C Mixed: 19°C

PACKAGING, HANDLING & STORAGE

Storage | Store Indoors.

WARRANTY

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