Phenoline Tank Shield

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Amine-adduct cured epoxy
Description	This product is a solvent-free, high performance epoxy coating designed as an internal tank, valve and pipe lining for chemical or other commodity storage. It is a unique blend of resins and curing agents that allow batch mixing for ease of application. Plural component spray equipment is not required. The product is blush resistant and is typically applied at film thicknesses of 20-35 mils (500-875 microns) or thicker as needed (tank floors). It can handle exposures typically seen in the oil and gas industries; crude oils and fuels. It is resistant to NGL condensates, produced water, brines, and industrial process water.
Features	• Batch mix formulation, single leg airless spray. • High impact resistance • Superior adhesion to steel • Excellent resistance to water and salt water • Resistance to a broad range of fuels including ethanol • Resistant to hot water up to 150°F/65°C • Excellent abrasion resistance and flexibility • Can be applied down to 35°F/2°C • Can be applied as a single or multi-coat system • Non-blushing with a long recoat window • Low odor
Color	Standard: Grey (Z700) Special Order: White (0800) or Blue (0100)
Finish	Gloss
Primer	Coating is normally applied direct to metal. May be applied over other primers as recommended by Carboline.
Dry Film Thickness	305 - 1016 microns (12 - 40 mils) per coat Depends on service and existing condition of the substrate, product is typically applied in a one coat application at the appropriate film thickness depending on the application. Higher film thicknesses (60+ mils/1500+ microns) are used for more aggressive or abrasive conditions or for severely pitted steel (tank bottoms). Maximum vertical film build is 40 mils (1000 microns) with the product unthinned.
Solids Content	By Volume 98% +/- 2%
Theoretical Coverage Rate	38.6 m²/l at 25 microns (1572 ft²/gal at 1.0 mils) 3.2 m²/l at 300 microns (131 ft²/gal at 12.0 mils) 1.0 m²/l at 1000 microns (39 ft²/gal at 40.0 mils) Allow for loss in mixing and application.
VOC Values	**As Supplied** : 11 g/l Thinned 5% with Thinner 213 - 53 g/l Thinned 5% with Thinner 76 - 49 g/l
Wet Temp. Resistance	Immersion temperature resistance depends upon exposure, consult Carboline Technical Service for specific information

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	Cleanliness: Abrasive blast to SSPC-SP10 (minimum) Profile: Minimum 3 mil (75 micron) dense, sharp anchor profile free of peening, as measured by ASTM D 4417. Defects exposed by blasting must be repaired.
Concrete	Concrete: Clean and dry. Remove all loose, unsound concrete. Do not apply coating unless concrete has cured at least 28 days @ 70°F (21°C) and 50% RH or equivalent. Prepare surfaces in accordance with ASTM D4258 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require filling/surfacing.

MIXING & THINNING

Mixing	This product may be batch mixed and applied using standard airless spray equipment. Power mix each component separately, then combine and power mix until homogenous. Component Details for Colors: Grey (Z700): The Part A is black (0909) and the Part B is white (0800) Blue (0100): The Part A is blue (0910) and the Part B is white (0800) White (0800): The Part A is clear (0000) and the Part B is white (0800)
Thinning	Thinning not normally required, but may be thinned up to 5% (6 ounces/gal) with Thinner #76. Thinner #76 will both reduce viscosity for sprayability and will extend pot life. However, the addition of Thinner #76 at 5% will limit vertical film build to 30 mils. Addition of 5% Thinner 213 will aid in high temperature film build but will not increase pot life. See "Application Conditions". CLEANUP THINNER: Thinner 2 or 76.
Ratio	1:1 by volume (Part A to Part B)
Pot Life	30 to 45 minutes at 75°F. Consult Carboline Technical Service for techniques to maximize pot life.

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.

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 equipment manufacturers.
Airless Spray	Airless spray equipment capable of minimum 4000 psi (45:1 ratio or larger). Fluid hose shall be minimum 1/2" I.D. with short 3/8" I.D. whip hose recommended. Airless spray gun shall be rated minimum 5000 psi utilizing reverse-a-clean tips sizes 0.021-0.027” with fan size range between #5 to #9 depending on whether any thinner is added. A wider tip fan size facilitates break up and reduces fingering when no thinner is used. Fixed-ratio (1:1 by volume) plural component equipment may also be used if the material cannot be sprayed within the pot life of the mixed material. Plural spray rig shall have heated hoppers, heated hoses to a mixer manifold through (at least two) static mixers to a 15-25 ft. 3/8" I.D. whip hose. Pre-mix the separate components prior to adding or incorporating into plural component equipment to break the gel. Do not heat material above 110°F (43°C).

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	13°C (55°F)	2°C (35°F)	2°C (35°F)	0%
Maximum	43°C (110°F)	52°C (125°F)	43°C (110°F)	85%

This product 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. For high film thickness (20 mils +) single coat application on surface above 110°F, add 5% Thinner 213.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Immersion Service (Most Chemical Service)
2°C (35°F)	74 Hours	7 Days
10°C (50°F)	30 Hours	5 Days
24°C (75°F)	10 Hours	3 Days
32°C (90°F)	5 Hours	24 Hours

Dry to touch is normally 6 hours at 75°F/24°C.
Cure for Service: Cure for service times are dependent on curing conditions and expected immersion exposure. Film hardness (Shore D of 75 or greater) and/or solvent resistance (passes a 25 solvent double-rub* (ex: ethanol or MEK); are good indications that the lining is suitable for immersion service. Typically this can be from 24-72 hours or longer depending on the curing conditions. For recoating, if the product has exceeded the maximum recoat time, de-gloss and roughen by light sanding or mechanically abrade the surface and remove dust prior to topcoating.
Maximum recoat time is 30 days.
*No significant color pick-up and some down-glossing is acceptable

CLEANUP & SAFETY

Cleanup	Thinner #2 is recommended for clean up.
Safety	Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions.
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 vapor 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.

PACKAGING, HANDLING & STORAGE

Shelf Life	12 months
Shipping Weight (Approximate)	12 lbs/gal (5.5 kg/gal)
Storage Temperature & Humidity	40° - 110°F (4°-43°C) 0-90% Relative Humidity
Flash Point (Setaflash)	Part A: 166°F (74°C) Part B: 204°F (95°C)

PACKAGING, HANDLING & STORAGE

Packaging | Available in 10-gal(37.8-lit) and 4-gal (15.1 lit) kits.

WARRANTY

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