Phenoline Tank Shield

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Phenolic epoxy novolac
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 500 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, industrial process water, waste water, and sewage. Ideal for municipal wastewater and water treatment facilities.
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 • Passes EI 1541 requirements for internal protective coating systems used in aviation fuel handling systems, including the jet fuel gum test • Resistant to hot water up to 82°C • Excellent abrasion resistance and flexibility • Can be applied down to 2°C • Can be applied as a single or multi-coat system • NSF/ANSI 61 compliant for use in potable water tanks, pipes, and valves.* • Certified by UL to meet the drinking water criteria of NSF/ANSI/CAN 600 • Non-blushing with a long recoat window • Tested and approved to AS/NZS 4020:2018 (refer to "Approvals" section) • Low odour Contact Carboline Technical Service for approved dimensions. *Valid when manufactured at a certified location.
Colour	White Grey (MTO)
Finish	Gloss
Primer	Coating is normally applied direct to metal. May be applied over other primers as recommended by Carboline.
Dry Film Thickness	305 - 762 microns (12 - 30 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 (1500+ microns) are used for more aggressive or abrasive conditions or for severely pitted steel (tank bottoms). Maximum vertical film build is 750 microns. **For potable water applications:** NSF/ANSI 61: 1 or 2 coats to a maximum of 1250 microns, or, AS/NZS 4020: 1 coat at 500 microns
Solids Content	By Volume 99% +/- 1%
Theoretical Coverage Rate	39.0 m² at 25 microns (1588 ft² at 1.0 mils) 3.2 m² at 300 microns (132 ft² at 12.0 mils) 1.3 m² at 750 microns (53 ft² at 30.0 mils) Allow for loss in mixing and application.

SELECTION & SPECIFICATION DATA

VOC Values	**As Supplied** : 9 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 as described in SSPC-SP 1 (AS 1627.1).
Steel	Cleanliness: Abrasive blast to SSPC-SP10 (AS 1627.4 Sa 2½) minimum Profile: Minimum 75 micron dense, sharp anchor profile free of peening, as measured by ASTM D4417. 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 @ 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. IMPORTANT: Power mix each component separately, then combine and power mix until homogenous. For convenience, pail size has been selected so that Part A can be poured in its entirety into the Part B pail when mixing full kits. Component Details for Colours: Grey: The Part A is black and the Part B is white White: The Part A is clear and the Part B is white
Thinning	Thinning not normally required. CLEANUP THINNER: Thinner #2 or #76.
Ratio	1:1 by volume (Part A to Part B)
Pot Life	30 minutes at 24°C. Consult Carboline Technical Service for techniques to maximise 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.

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.

Airless Spray	Airless spray equipment capable of minimum 6000 psi (60:1 ratio or larger) with a minimum 1800 cc lower. Fluid hose shall be minimum 1/2" I.D. Airless spray gun shall be rated minimum 7000 psi utilising reverse-a-clean tips sizes 0.021-0.027" with fan size range between #5 to #9. A wider tip fan size facilitates break up and reduces fingering. 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 5-8meter, 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 43°C. See "Phenoline Tank Shield Application Guide" for more detailed instructions.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	13°C (55°F)	2°C (35°F)	2°C (35°F)	0%
Maximum	32°C (90°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.

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 and Dry to Recoat is normally 6 hours at 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* using Thinner #2 or Thinner #76); 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.
Maximum recoat time is 30 days at 25°C and reduces in half for each additional 9°C increase of surface temperature.
If the product has exceeded the maximum recoat time, de-gloss and roughen by sanding or mechanically abrade the surface and remove dust prior to topcoating.
*No significant colour pick-up and some down-glossing is acceptable

TESTING / CERTIFICATION / LISTING

Underwriters Laboratories, Inc.	Complies with ANSI/ NSF Standard 61* For potable water applications: 1 or 2 coats to a maximum of 1250 microns. *Valid if manufactured at a certified location

APPROVALS

Approvals NZ/AU	**AS/NZS 4020:2018 Potable Water Approval** Australian Water Quality Centre: Report ID: 323766 Exposure: 15,000 mm²/L Approved for DTM applications at 500 microns dry or with use of Phenoline Tank Shield FP as required.

CLEANUP & SAFETY

Cleanup	Thinner #2 or #76 are recommended for clean up.
Safety	Read and follow all caution statements on this product data sheet and on the SDS 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

Packaging	**16 Litre Kit:** Part A: 8L in an 10L pail Part B: 8L in a 20L pail
Shelf Life	12 months for both Parts A and B. Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers. For products/components exceeding the stated shelf life, contact Technical Services for further advice.
Storage Temperature & Humidity	4° - 43°C 0-90% Relative Humidity
Flash Point (Setaflash)	Part A: 74°C Part B: 95°C
Shipping Weight (Approximate)	1.4kg per litre

WARRANTY

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