PRODUCT DATA SHEET

SERIES E456 | CPP PERMA-SHIELD®

PRODUCT PROFILE

GENERIC DESCRIPTION

Ultra-High Build, Structural-Grade, Spray-Applied Microfiber Reinforced Polymer (FRP) Modified Novolac Epoxy

COMMON USAGE

This 100% solids polycyclic amine epoxy liner is formulated using **Tnemec Company's proven Perma-Shield® technology** for enhanced resistance to severe H_2S environments. Applied as an ultra-high build, high-strength microfiber-reinforced polymer (FRP) applied liner, Series E456 protects against corrosion while sealing below-grade structures from inflow and infiltration (I&I). Specifically designed for rehabilitation and lining of wastewater treatment plant (WWTP) structures and other large wall, open, or semi-open structures where high film strength and durability are required to deliver sealed barrier protection against microbiologically induced corrosion (MIC), severe hydrogen sulfide (H_2S) and I&I. This is achieved by the product's formulated balance of high strength properties, acid protection, and high surface acceptance to saturated surface dry (SSD) conditions with the ability to cure within high humidity environments. Formerly CPP Sprayliner.

COLORS

5032 Structural Gray

FINISH

Orange-peel

SPECIAL QUALIFICATIONS

Tested in accordance with ASTM G 210 "Severe Wastewater Analysis Test (SWAT)"

COATING SYSTEM

SURFACER/FILLER/PATCHER

Mortartec Ceramico, Mortartec Silicate, Series 217, N218.

PRIMERS

Self-priming, Series N69F, or CPP Trowel-Liner.

TO TOPCOAT WINDOW AT 75°F (24°C)

Primer	Minimum	Maximum
Series N69F	3 hours	7 days
CPP Trowel-Liner	*	5 days
Series E456	*	5 days

***** No minimum cure time but film shall be capable of supporting weight of topcoat to avoid sagging.

SURFACE PREPARATION

CONCRETE

Allow new cast-in-place concrete to cure a minimum of 28 days at 75°F (24°C). Prepare the concrete by abrasive blasting, high or ultra-high pressure water cleaning, and/or approved mechanical methods to achieve clean, sound, and profiled concrete in accordance with SSPC-SP13/NACE No. 6 "Surface Preparation of Concrete." A minimum ICRI profile of CSP 5 or higher shall be achieved with a minimum pH 9. Large cracks, voids and other surface imperfections should be filled with a recommended filler or surfacer. **Note:** Epoxytec CPP Perma-Shield is self-priming and may be applied direct to concrete (DTC). However, should an abnormal or conditional situation exist (i.e. outgassing, MVT, etc), primers and/or resurfacers (although optional) can assist, and may be recommended.

STEEL

Before preparing steel, please inspect and remove oil, grease, or other contaminants. Abrasive blasting (or other approved mechanical methods) must be used in order to achieve a clean surface in accordance with SSPC-SP10/NACE No. 2 "Near White Blast Cleaning" and a minimum profile of 4.0 mils (100 microns). To prevent flash rusting, consider the use of a Tnemec recommended holding primer.

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SURFACE PREPARATION

ALL SURFACES

Surface must be clean, sound, and profiled. Remove all dust, contaminants, grease, curing compounds, rust, impregnation, waxes, foreign particles, and disintegrated materials from the surface, in order to achieve a clean and profiled surface. Methods outlined herein are a basis of design for generalized guidance. Refer to epoxytec.com for additional system design detail and guidelines; please consult with your Tnemec representative on other specific design considerations.

TECHNICAL DATA

VOLUME SOLIDS

100%

RECOMMENDED DFT

Mild Conditions as a Protective Coating, Non-Structural: 80.0 mils (2.0 mm) minimum.
I&I or Aggressive Conditions, as a High Strength Liner, Structural Film: 125.0 mils (3.2 mm) minimum.
Note: "Structural" reference herein describes an applied and bonded high-strength film designed to hold back low pressure inflow/infiltration (I&I) and other low pressure water transmission through concrete. For structures requiring fully structural design consideration, criteria and variables will need to be calculated for specific design thickness recommendations by a licensed professional engineer.

CURING TIME

Temperature	Full Cure
140°F (60°C)	30-45 minutes
120°F (49°C)	2-4 hours
95°F (35°C)	10-12 hours
77°F (25°C)	18-24 hours

VOLATILE ORGANIC COMPOUNDS (VOCs)

0.04 lbs/gal (5 g/l)

THEORETICAL COVERAGE

1,604 mil sq ft/gal (39.3 m²/L at 25 microns). See APPLICATION for coverage rates.

NUMBER OF COMPONENTS

Two: Part A (Epoxy) and Part B (Amine).

MIXING RATIO

By volume: one (Part A) to one (Part B).

PACKAGING

	Part A (partially filled)	Part B (partially filled)	Yield (mixed)
Extra Large Kit	55 gallon drum	55 gallon drum	100 gallons (378.6 L)
Large Kit	6 gallon pail	6 gallon pail	10 gallons (37.9 L)

NET WEIGHT PER GALLON

12.07 ± 0.25 lbs (5.47 ± 0.11 kg) (mixed)

STORAGE TEMPERATURE

For optimum handling and application characteristics both material components should be stored or conditioned between 70°F (21°C) and 85°F (29°C) 48 hours prior to use.

TEMPERATURE RESISTANCE

(Dry) Continuous 250°F (120°C) (Dry) Intermittent 300°F (149°C)
(Wet) Intermittent 150°F (65°C)

SHELF LIFE

12 months at recommended storage temperatures.

FLASH POINT - SETA

>230°F (110°C)

HEALTH AND SAFETY

This product contains chemical ingredients which are considered hazardous. Read container label warning and Safety Data Sheet for important health and safety information prior to the use of this product. **Keep out of the reach of children.**

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APPLICATION

COVERAGE RATES

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m^2/Gal)
Minimum (Non-Structural)	80.0 (2030)	80.0 (2030)	20.0 (1.86)
Minimum (Structural Film)	125.0 (3175)	125.0 (3175)	12.8 (1.19)
Maximum (per coat)	375.0 (9525)	375.0 (9525)	4.28 (0.4)

MIXING
Requires specialized plural application equipments. See APPLICATION EQUIPMENT.

THINNING
Do not thin.

PURGE TIME
3 minutes at 105°F (42°C)

APPLICATION EQUIPMENT
Epoxytec CPP Perma-Shield is designed to be sprayed utilizing specialized equipment sold by approved equipment vendors of Epoxytec. This is a heated, plural component system.

Epoxytec limits the sale of Series E456 CPP Perma-Shield until all equipment and know-how is validated. For detailed spray equipment specifications, heating, pressure, power, hose specs, purging/cleaning requirements or designs- contact Tnemec Technical Services.

SURFACE TEMPERATURE
Minimum 45°F (7°C) Maximum 130°F (54°C)

MATERIAL TEMPERATURE
Epoxytec CPP Perma-Shield is designed to be sprayed utilizing specialized heated plural component. Material conditioning parameters are detailed on spray equipment specifications and Application Guide - contact Tnemec Technical Services.

CLEANUP
Purge and clean with Tnemec No. 42 Thinner.

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