Product Data Sheet

RCC CORROSION CONTROL

TOPLINE 288 EN
Trowel Applied Reinforced Epoxy Novolac Lining

PRODUCT DESCRIPTION
TOPLINE 288 EN is a trowel applied fiberglass mat reinforced lining based on Epoxy Novolac resin.

LINING LAYERS COMPOSITION
The lining system consists of a primer, one trowel applied basecoat, 1.5 oz. fiberglass mat as reinforcement and one trowel applied topcoat. The total thickness of the lining system is 120-160 mils (3.0-4.0 mm) DFT.

FIELDS OF APPLICATION
TOPLINE 288 EN is used to protect steel and concrete structures that are exposed to alkalis, salts and many acids. It has excellent resistance to 98% sulfuric acid and all concentrations of sodium hydroxide. It is used in process and storage areas as a protective lining for tanks, trenches, pits, process floors and secondary containment.

FEATURES
- Superior resistance to 98% Sulfuric Acid strong caustic solutions and other corrosive chemicals Excellent adhesion to steel and concrete
- Mat reinforcement provides structural support
- Very good mechanical properties
- Low odor, 100% solids

CHEMICAL RESISTANCE
Information on the chemical resistance properties is available upon request.

SURFACE PRE-TREATMENT
Carbon steel
For immersion or frequent spillage conditions, abrasive blast to “White Metal” in accordance with SSPC SP-5, NACE Specification #1 or SA 3. For fumes or occasional spill exposure and dry environments, abrasive blast to “Near White” in accordance with SP-10, NACE #2 or SA 2 1/2. A minimum surface profile of 3 mils (75 µm) is required. Refer to specification, RCC TT-14. After blast cleaning the steel surface shall be primed before the formation of any rust bloom.

Concrete
The concrete shall have a minimum compressive strength of 3500 psi (25 N/mm²) and a minimum surface strength of 200 psi (1.4 N/mm²) for coatings and 300 psi (2.1 N/mm²) for linings. The concrete must be thoroughly cured and dry at the time of application.

The residual moisture content should not exceed 4%. ASTM D 4263 plastic sheet test method is recommended to ensure concrete is moisture free. If moisture is detected, repeat test until dry.

Abrasive blast or mechanically abrade surface to remove the weak laitance and surface contaminants. Refer to specification, RCC TT-3 for details.

APPLICATION
- Prime the substrate with **COROFLAKE 67PS PRIMER** and allow the primer to cure.
- Trowel apply the Basecoat mixture of **TOPLINE 288 EN Resin**, **Hardener No. 8** and **F-1 Filler** in one uniform layer at approximately 60 mils (1500 µm) WFT.
- Immediately upon placement of the Basecoat (while it is still wet), the 1.5 oz. fiberglass mat is pressed onto the surface, then saturated and rolled with the mixed **TOPLINE 288 EN Resin** and **Hardener No. 8**. A ribbed roller is used to remove any entrapped air. Allow the mat layer to cure.
- Trowel apply the Topcoat mixture of **TOPLINE 288 EN** resin, **Hardener No. 8** and **F-1 Filler** in one uniform layer at approximately 60 mils (1500 µm) WFT.
- Immediately upon placement of the Topcoat use a brush and/or roller dampened in **Smoothing Liquid F-20** to remove trowel marks and smooth the surface.

Note: During application the lined surface should be shaded from direct or indirect sunlight whenever possible.

MIX RATIO
Hardener No. 7 is added to the **COROFLAKE 67PS PRIMER Resin** at a mixing ratio of 2:1, Resin to Hardener by volume. **Hardener No. 8** is added to **TOPLINE 288 EN Resin** at a mixing ratio of 2:1, Resin to Hardener by volume.

The primer and lining components are supplied in kits including resin and hardener. Filler, fiberglass mat and smoothing liquid are supplied separately.

CONSUMPTION

Layer	Thickness mils (µm)	Coverage
PRIMER on steel	2-5 (50-125)	250-300 ft²/gal
PRIMER on concrete	2-5 (50-125)	160-200 ft²/gal

CONSUMPTION

Layer	Thickness mils (µm)	Coverage (mix ratio)
BASECOAT TOPLINE 288 EN Resin & Hardener No.8 F-1 Filler	60 (1500)	47-52 ft²/gal (2:1 vol, resin: hardener) 100 ft²/50 lb bag (20-25 lb/gal of mixed resin)
REINFORCEMENT TOPLINE 288 EN Resin & Hardener No.8 1.5 oz. Mat	35 (875)	38-42 ft²/gal (2:1 vol, resin: hardener) 1.1 x surface area
TOPCOAT TOPLINE 288 EN Resin & Hardener No.8 F-1 Filler	60 (1500)	47-52 ft²/gal (2:1 vol, resin: hardener) 100 ft²/50 lb bag (20-25 lb/gal of mixed resin)

WORKING TIME & RECOAT TIME

Temperature	Working Time	Min Recoat	Max Recoat
50°F (10°C)	approx. 60 min	16 hrs	1 week
70°F (21°C)	approx. 40 min	8 hrs	48 hrs
90°F (32°C)	approx. 20 min	4 hrs	24 hrs

CURE TIME (to place in service)

Temperature	Minimum Cure time	Minimum Cure time for concentrated Sulfuric acid
70°F (21°C)	3 days	7 days
90°F (32°C)	2 days	3 days

Generally **TOPLINE 288 EN** can be placed in service after the final cure time intervals have been achieved. Shorter or longer intervals may apply depending on service conditions. Consult RCC Corrosion Control for specific recommendations.

CLEANING: Cleaning Agent T-100

SAFETY MEASURES

The material safety data sheets of the individual components as well as the legal requirements for handling hazardous materials must be observed.

PACKING UNITS

The products are supplied in the following standard package sizes:

Description	Package Size
COROFLAKE 67PS PRIMER	.75, 3, 15, 45 gal kits
TOPLINE 288 EN	.75, 3 gal kits
1.5 oz. Fiberglass Mat	Per sq.ft.
F-1 Filler	50 lb Bag
Smoothing Liquid F-20	1, 5 gal

STORAGE

The materials must be stored in a cool and dry place. Shelf life at 70°F (21°C) is as follows:

COROFLAKE 67PS PRIMER Resin 24 months
TOPLINE 288 EN Resin 24 months
Hardener No. 7 & Hardener No. 8 24 months
F-1 Filler, 1.5 oz. Mat Indefinite, if kept dry

If the storage time is exceeded, the materials must be tested before use. Higher storage and transport temperatures will reduce the shelf life. The containers must be kept tightly closed. Liquid products must be stored frost-proof.

Technical Data	Testing Standard	Unit	Value
Density (unfilled)	ASTM D1475	lbs/gal (kg/l)	9.5±0.25 (1.14)
Viscosity (Brookfield)	ASTM D2196	cps (mPa·s)	2000 ± 250
Tensile Strength	ASTM D638	psi (MPa)	2000-2900 (15 - 20)
Compressive Strength	ASTM C579	psi (MPa)	10,000-13,000 (70-90)
Abrasion Resistance	ASTM D 4060	mg	100
Adhesion Strength - Concrete	ASTM D7234	psi (N/mm²)	Exceeds concrete strength
Minimum Adhesion Strength - Steel	ASTM D4541	psi (N/mm²)	1000 (7)
Linear Coefficient of Thermal Expansion	ASTM C531	in/in°F (cm/cm°C)	15-17 x 10^{-6} (27-30 x 10^{-6})
Water Vapor Permeability	ASTM E-96, Procedure E	perm-inch	0.002
Volatile Organic Compounds	EPA Method 24	g/L (lbs/gal)	16 (0.13)
Maximum Operating Temperature* Immersion Steel Immersion Concrete Splash/Spill Concrete		°F °C °F °C °F °C	160 71 180 82 220 104

***Maximum operating temperature limits may vary depending on actual service conditions**

We warrant that our goods will conform to the description contained in the order and that we have good title to all goods sold. This Product Data Sheet is considered accurate and reliable to the best of our knowledge at the date of its publication, but are used as guides only. The user assumes all risks and liabilities in connection therewith regardless of any suggestion, we may give. We assume no liability for performance of the product or for any loss or damage resulting from its use. Our liability, in law and equity, shall be expressly limited to the replacement of non-conforming goods at our factory, or at our sole discretion, to repayment of the purchase price of the non-conforming goods.