



# PERMA-SHIELD® FR SERIES G436

## PRODUCT PROFILE

**GENERIC DESCRIPTION** Fiber-Reinforced Modified Polyamine Epoxy

**COMMON USAGE** A thick film, 100% solids, spray-applied, abrasion-resistant coating designed for wastewater immersion and fume environments. Provides excellent resistance to H<sub>2</sub>S gas permeation, protects against MIC and provides chemical resistance to severe wastewater environments. Fiber-reinforcement provides superior physical strength and higher film build.

**COLORS** 5020 Gray, 5023 Beige. **Note:** Epoxies chalk with extended exposure to sunlight.

**FINISH** Gloss

## COATING SYSTEM

**SURFACER/FILLER/PATCHER** Series 215, 217, 218

**PRIMERS** **Concrete:** Self-priming or Series 201.

**TOPCOATS** Series 435 (optional)

**Note:** To minimize pinhole formation in the topcoat, it is recommended that concrete substrates be fully resurfaced and/or primed prior to topcoat application.

## SURFACE PREPARATION

Prepare surfaces by method suitable for exposure and service. Refer to the appropriate primer data sheet for specific recommendations.

**CONCRETE** Allow new cast-in-place concrete to cure a minimum of 28 days at 75°F (24°C). Verify concrete dryness in accordance with ASTM F 1869 "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride" (moisture vapor transmission should not exceed three pounds per 1,000 square feet in a 24 hour period), F 2170 "Standard Test Method for Determining Relative Humidity in Concrete using in situ Probes" (relative humidity should not exceed 80%), or D 4263 "Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method" (no moisture present). Prepare concrete surfaces in accordance with NACE No. 6/SSPC-SP13 Joint Surface Preparation Standards and ICRI Technical Guidelines. Abrasive blast, shot-blast, water jet or mechanically abrade concrete surfaces to remove laitance, curing compounds, hardeners, sealers and other contaminants and to provide a minimum ICRI-CSP 5 surface profile. Large cracks, voids and other surface imperfections should be filled with a recommended filler or surfacer.

**OTHER SUBSTRATES** Contact your Tnemec representative or Tnemec Technical Services.

**ALL SURFACES** Must be clean, dry and free of oil, grease and other contaminants.

## TECHNICAL DATA

**VOLUME SOLIDS** 100% (mixed)

**RECOMMENDED DFT** **Concrete:** 50.0 to 125.0 mils (1270 to 3175 microns) in one or two coats. **Note:** Number of coats and thickness requirements will vary with substrate, application method and exposure. Contact your Tnemec representative.

**CURING TIME**

Temperature	To Touch	Dry Through	To Place in Service	Max. Recoat
75°F (24°C)	3 hours	14 hours	2 days	7 days
55°F (13°C)	7 hours	30 hours	3 days	7 days

**Note:** If more than 7 days have elapsed between coats, the Series 436 coated surface must be mechanically abraded before topcoating. Curing time will vary with surface temperature, air movement, humidity and film thickness.

## VOLATILE ORGANIC COMPOUNDS

**HAPS** EPA Method 24:  
0.32 lbs/gallon (38 grams/litre)

**THEORETICAL COVERAGE** 0.01 lbs/gallon solids

**NUMBER OF COMPONENTS** 1,604 mil sq ft/gal (39.4 m<sup>2</sup>/L at 25 microns). See APPLICATION for coverage rates.

**MIXING RATIO** Two: Part A (Epoxy) and Part B (Amine)

**PACKAGING** By volume: One (Part A) to one (Part B)

	PART A (Partially filled)	PART B (Partially filled)	Mixed Yield
Medium Kit	1-3 gallon pail	1-6 gallon pail	5 gallons (18.9 L)
Small Kit	1-1 gallon can	1-1 gallon can	1 gallon (3.79 L)

**NET WEIGHT PER GALLON** 10.79 ± 0.25 lbs (4.9 ± .11 kg) (mixed)

**STORAGE TEMPERATURE** Minimum 40°F (4°C) Maximum 110°F (32°C)  
For optimum handling and application characteristics, both material components should be stored or conditioned between 70°F and 80°F (21°C and 27°C) 48 hours prior to use.

**TEMPERATURE RESISTANCE** (Dry) Continuous 275°F (135°C) Intermittent 300°F (149°C)

**SHELF LIFE** 12 months at recommended storage temperature.

**FLASH POINT - SETA** Part A: 184°F (84°C) Part B: >230°F (110°C)

**HEALTH & 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

Before commencing, obtain and thoroughly read the Series 436 Surface Preparation and Application Guide.

	Dry Mils (Microns)	Wet Mils (Microns)	Sq Ft/Gal (m <sup>2</sup> /Gal)
Minimum	50.0 (1270)	50.0 (1270)	32 (3.0)
Maximum	125.0 (3175)	125.0 (3175)	13 (1.2)

**Note:** Recommended DFT will depend on substrate condition and system design. Refer to Recommended DFT section on page 1. Allow for overspray and surface irregularities. Film thickness is rounded to the nearest 0.5 mil or 5 microns. Application of coating below minimum or above maximum recommended dry film thickness may adversely affect coating performance.

### MIXING

Mix the entire contents of Part A and Part B separately. Scrape all of the Part A into the Part B by using a flexible spatula.

**Note:** Small kit will require the use of a separate container large enough to hold both components. Use a variable speed drill with a PS Jiffy blade and mix the blended components for a minimum of two minutes. During the mixing process, scrape the sides and bottom of the container to ensure all of Parts A and B are blended together. Apply the mixed material within pot life limits after agitation. **Note:** A large volume of material will set up quickly if not applied or reduced in volume. Mixing ratio is one to one by volume. **Caution: Do not reseal mixed material. An explosion hazard may be created. Do not attempt to split kits.**

### THINNING

**DO NOT THIN**

### POT LIFE

25 to 30 minutes at 70°F (21°C) 15 to 20 minutes at 80°F (27°C)

Material, equipment, and ambient temperatures above 80°F (27°C) will significantly reduce the spray and pot life.

### SPRAY LIFE

15 to 20 minutes at 70°F (21°C) 5 to 10 minutes at 80°F (27°C)

### APPLICATION EQUIPMENT

**Airless Spray**

Spray Gun	Pump Size	Tip Orifice	Atomizing Pressure	Mat'l Hose ID	Manifold Filter
Graco XHF, XTR-7 Gun or WIWA 500F	45:1, 56:1, X50 or X60	0.041"-0.045" (1041-1143 microns)	1,800-2,500 psi (124-172 bar)	See below	N/R

**Note:** Graco H.D. RAC Housing/Guard assembly and H.D. tip sizes ranging from 0.045" to 0.051" should be used. Material needs to be gravity fed through an attached material hopper. Material will not feed through a suction tube.

**Material Hose ID:** Attach (1) 25' x 3/4" hose to the pump. Attach (1) 25' x 1/2" hose to the 3/4" line. Attach (1) 6-10' x 3/8" hose to the 1/2" line and gun.

**Brush or Trowel:** Recommended for small areas only.

**Note:** The Series 436 Surface Preparation and Application Guide contains important information regarding detailed equipment recommendations. Read carefully prior to application to ensure equipment is configured correctly. Contact Tnemec Technical Service for more information.

### SURFACE TEMPERATURE

Minimum of 50°F (10°C), optimum 65°F to 80°F (18°C to 27°C), maximum of 130°F (54°C). The substrate temperature should be at least 5°F (3°C) above the dew point.

### MATERIAL TEMPERATURE

For optimum handling and application characteristics, both material components should be stored or conditioned between 70°F and 80°F (21°C and 27°C) 48 hours prior to use. Temperature will affect the workability which can lead to improper film formation and pin holes. Cool temperatures increase viscosity and decrease workability. Warm temperatures will decrease viscosity and shorten the spray and pot life.

### HOLIDAY TESTING

If required by project specifications, High Voltage Discontinuity (spark) testing shall be performed using a Tinker & Rasor AP/W High Voltage Holiday Tester. Contact Tnemec Technical Service for voltage recommendations.

### CLEANUP

Flush and clean all equipment immediately after use with Tnemec's No. 4 Thinner or MEK.

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