

Data Sheet

GENERAL DESCRIPTION
– SUBJECT TO CHANGES OR DEVIATIONS

ElectroFin® E-coat Factory-Applied Corrosion-Resistant Coil Coating

Product description

ElectroFin® is a water-based, flexible cationic epoxy polymer using an electro-coat process specifically engineered for HVAC/R heat transfer coils. PPG POWERCRON® HE (high edge) technology improves coverage of fin edges through a unique polymer that controls the coating flow characteristics.

Coil coating specification

Heat exchanger (HX) coil shall have a flexible cationic epoxy polymer e-coat uniformly applied to all metallic surfaces with no material bridging between fins. The electro-coat process shall ensure complete HX encapsulation of all conductive surfaces with uniform dry film thickness from 0.6-1.2 mils (15-25 µm). E-coating shall meet 4B-5B rating for cross-hatch adhesion per ASTM B3359-93. Corrosion durability will be confirmed through testing to no less than 6,000 hours salt spray resistance per ASTM B117-90 using scribed aluminum test coupons. After e-coat cure, HX shall receive a spray-applied, 2K polyurethane black topcoat to prevent UV degradation of epoxy e-coat film. Topcoat shall have 60 degree gloss (>90%) and dry film thickness of 50-60µm.

ElectroFin E-coat meets these test standards

- ASTM B117 / DIN 53167 Salt Spray - 6,048 hours
- ASTM B117-G85 Modified Salt Spray - 2,000 hours
- DIN 50018 Kesternich - 120 cycles
- GM9540P-97 Accelerated Corrosion Test (120 cycles)
- VA Master Construction Specification Division 23 for High Humidity Installations
- MIL-C-46168 - Chemical Warfare Decontaminating Solution DS2
- CID AA-52474A (GSA)
- MIL-STD 810F, Method 509.4 (Sand and Dust)
- MIL-P-53084 (ME) - TACOM Approval
- MIL-DTL-12468 Decontamination Agent (STB)
- Dugway Proving Grounds Soil & Water Exposure

Technical Properties

Property	Test Method	Performance
Dry Film Thickness	ASTM D7091	0.6-1.2 mils / 15-25 µm
Gloss - 60 Degree	ASTM D523	55-75
Pencil Hardness	ASTM D3363	2H minimum
Water Immersion	ASTM D870	>1,000 hours
Cross Hatch Adhesion	ASTM D3359	4B-5B / 0 European
Direct Impact	ASTM D2794	100 in-lb (11,3 N-m) minimum
Salt Spray Corrosion	ASTM B117-97 / DIN 53167	6,048+ Hours
Cyclic Corrosion	DIN 50018 / Kesternich	120 cycles
Humidity	ASTM D1735	1,000 hours minimum
Heat Transfer Reduction	ARI 410	Less than 1%
Bridging	-	No bridging including enhanced and micro-channel fin designs
Coating Of Enhanced Fins	-	Up to 30 fins per inch
pH Range	-	3-12
Temperature Limits	-	-40 °F to 325 °F / -40 °C to 163 °C (dry load)
QUV-A Weathering (topcoat)	ASTM 4587	2,200 hrs.

ElectroFin E-coat vs. Other HX Coatings

	ElectroFin E-coat	Dip Phenolics	Cataphoresis	Other E-coats
Application Method	Complete Immersion Cathodic Deposition	Manual Dip or Flow	Complete Immersion Anodic or Cathodic Deposition	Anodic or Cathodic Deposition
Flexibility	Excellent	Poor – Good	Good	Good
Coating Uniformity	Computer-controlled, Consistent 0.6-1.2 mils (15-25 µm)	Manual, Inconsistent 2.0-7.0 mils (50-150 µm)	Inconsistent 0.5 – 1.5 mils (10-37,5 µm)	Inconsistent 0.5-1.5 mils (10-37,5 mils µm)
Coating Penetration	Computer-controlled, consistent	Manual “Dip and Pray”	Inconsistent with bare metal depending on number of rows	Inconsistent with bare metal
Bridging	None - Up to 30 fpi & 16 rows	Limited to 16 fpi with bridging	Not suitable for MCHX	Limited to less than 14 fpi with bridging
Thermal Loss	< 1%	2% - 6%	2% - 6%	1% - 4%

