



## ElectroFin® E-coat

### Factory-Applied Corrosion-Resistant Coil Coating

ElectroFin® E-coat is a water-based, flexible epoxy polymer coating process engineered specifically for HVAC/R heat transfer coils. ElectroFin uses a PPG POWERCRON® e-coat formulation specifically designed to provide excellent edge coverage of fins with a unique polymer that controls the flow characteristics of the coating.

Benefits of ElectroFin's factory-applied electrocoating process:

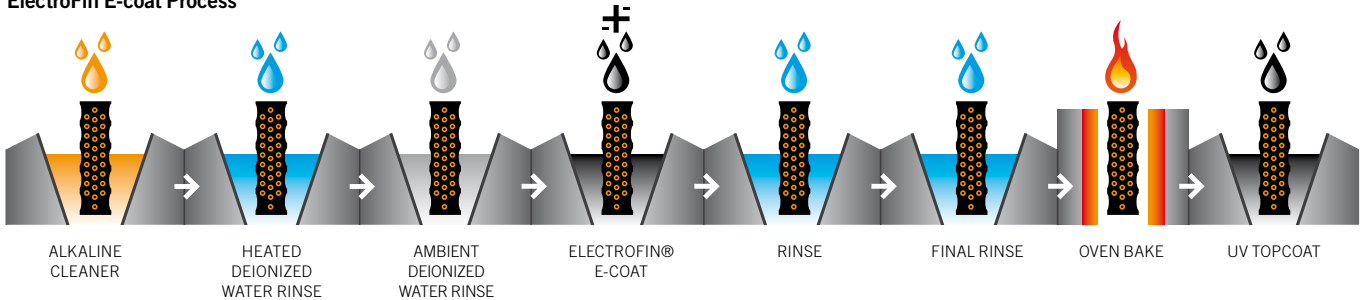
- The preferred corrosion-resistant coil coating choice for every major HVAC/R OEM
- The only process that can guarantee 100% coil coverage without bridging, including enhanced fin designs
- Proven corrosion protection for new all-aluminum microchannel coils
- Excellent corrosion and UV resistance make it suitable for coastal environments



#### About Luvata

Luvata is a world leader in metal solutions manufacturing and related engineering services. Luvata's solutions are used in industries such as renewable energy, power generation, automotive, medicine, air-conditioning, industrial refrigeration, and consumer products. The company's continued success is attributed to its longevity, technological excellence and strategy of building partnerships beyond metals. Employing over 6,400 staff in 16 countries, Luvata works in partnership with customers such as Siemens, Toyota, CERN, and DWD International.

**ElectroFin E-coat Process**



Electrocoating is the process by which a metallic workpiece (coil) is submerged in a paint / water bath where electricity is used to deposit paint onto it. ElectroFin E-coat is a factory-applied corrosion-resistant coil coating which is applied in one of our two e-coat facilities.

**Corrosion Resistance**

In the electrocoating process, the coil acts in the same way as a magnet. The coating molecules are electrically attracted to the metallic coil surfaces, meaning the entire coil is completely and uniformly coated. The result is a finish which provides excellent resistance to coastal marine (salt-air), industrial and urban environments. When properly maintained, you can expect ElectroFin e-coated coils to provide protection for years.

**Resistance to UV Degradation**

When coils are to be subjected to ultraviolet exposure, they receive a spray-applied, UV-resistant urethane mastic topcoat. As a result, UV degradation of the epoxy e-coat polymer molecules is eliminated and the film integrity is maintained.

**Proven Effective**

The electro-deposition process is the most automatic, controllable, and efficient method for applying a corrosion inhibiting coating to a metallic workpiece. The process dictates that all metal surfaces are coated in an even, uniform finish. All coil surfaces reach an average e-coat dry film thickness of 1 mil (0.001”).

**Specifications**

Coil will have a flexible epoxy polymer e-coat uniformly applied to all coil surface areas with no material bridging between fins. The coating process will ensure complete coil encapsulation and a uniform dry film thickness from 0.6 – 1.2 mils on all surface areas including fin edges and meet 5B rating cross-hatch adhesion per ASTM B3359-93. Corrosion durability will be confirmed through testing to no less than 5,000 hours salt spray resistance per ASTM B117-90 using scribed aluminum test coupons. Coils subjected to ultraviolet (UV) exposure will receive a spray-applied, UV-resistant urethane mastic topcoat to prevent UV degradation of epoxy e-coat film.

**Technical Performance**

Test	Standard	Qualification
Dry Film Thickness	ASTM D7091-05	0.6-1.2 mils
Gloss - 60°	ASTM D523-89	65 - 90%
Pencil Hardness	ASTM D3363-00	2 H Minimum
Water Immersion	ASTM D870-02	>1000 hours @ 100°F
Cross Hatch Adhesion	ASTM D3359-97	4B - 5B
Impact Resistance	ASTM D2794-93	160 in./lbs. Direct
Salt Spray	ASTM B117-97	6,048+ Hours
Humidity	ASTM D2247-99 1	,000 Hours Minimum
Durability	-	Very Flexible, Consistent Film
Heat Transfer Reduction	ARI 410	Less Than 1%
Bridging	-	No Bridging Guaranteed
Coating Of Enhanced Fins	-	Up to 30 fins per inch
pH Range	-	3 - 12
Temperature Limits	-	40° F to 325° F

**ElectroFin E-coat meets these test standards**

- MIL-C-46168 Chemical Agent Resistance - DS2, HCl Gas
- CID A-A-52474A (GSA)
- MIL-STD 810F, Method 509.4 (Sand and Dust)
- MIL-P-53084 (ME) –TACOM Approval
- MIL-DTL-12468 Decontamination Agent (STB)
- DPG (Dugway Proving Grounds) Soil & Water Exposure Tests
- GM9540P-97 Accelerated Corrosion Test (120 cycles)
- ASTM B117-G85 Modified Salt Spray (Fog) Testing – 2,000 hours (tested by ARL for Lockheed Martin)

**ElectroFin E-coat vs. Others**

	ElectroFin E-coat	Dip Phenolics	Elastomerics	Other E-coats
<b>Application Method</b>	Complete Immersion Cathodic Deposition	Manual Dip or Flow	Manual Dip or Flow	Anodic or Cathodic Deposition
<b>Flexibility</b>	Excellent	Poor – Good	Excellent	Good
<b>Coating Uniformity</b>	Computer-controlled, Consistent (0.6-1.2 mils)	Manual Inconsistent (2-6 mils)	Manual Inconsistent (2-6 mils)	Inconsistent (0.4 – 1.5 mils)
<b>Coating Penetration</b>	Computer-controlled Consistent	Manual “Dip and Pray”	Manual “Dip and Pray”	Inconsistent to Bare Metal
<b>Bridging</b>	None – Up to 30 fpi & 16 rows	Limited to 16 fpi with some bridging	Limited to 14 fpi with some bridging	Limited to 14 fpi with bridging
<b>Thermal Loss</b>	< 1%	2% – 6%	2% – 6%	1% – 4%

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