Kalcor Coatings Company

DEKALB METAL FINISHING

Kalgard® 094-Line Corrosion Resistant Coating with Zinc Nickel Electroplated Substrate Neutral Salt Spray Test Results

Kalcor Coatings Company • 37721 Stevens Blvd. • Willoughby, OH 44094 • www.kalcor.com

Objective & Test Protocol

- Purpose: To test Kalcor corrosion resistant coatings over Zinc Nickel electroplated supplied sample steel panels to NSS (Neutral Salt Spray) per ASTM B-117.
- Zinc Nickel electroplated panels were prepared at the Dekalb Metal Finishing facility and provided to Kalcor.
- Two Zinc Nickel electroplated panels, (scribed and unscribed), were used as experimental controls.
- Each coating was applied at a target low and high mil thickness (0.8-1.0 mil, 1.2-1.7 mil respectively) and cured fully for 18 days at ambient temperature before being subjected to testing.
- Panels were evaluated weekly after initial salt spray exposure and incrementally thereafter until failure.

Test Variables

Panels were prepared in duplicate with the following Kalgard® 094-line corrosion resistant coating systems

- 094-9218PF
- 094-9709
- 088-94091
- 821-98654/822-08765 2K Epoxy (mixed 4:1 by volume

Adhesion

Coating System	ASTM Adhesion
094-9218PF	0/100
094-97-09	0/100
088-94091	0/100
821-98654/822-08765 2K	0/100

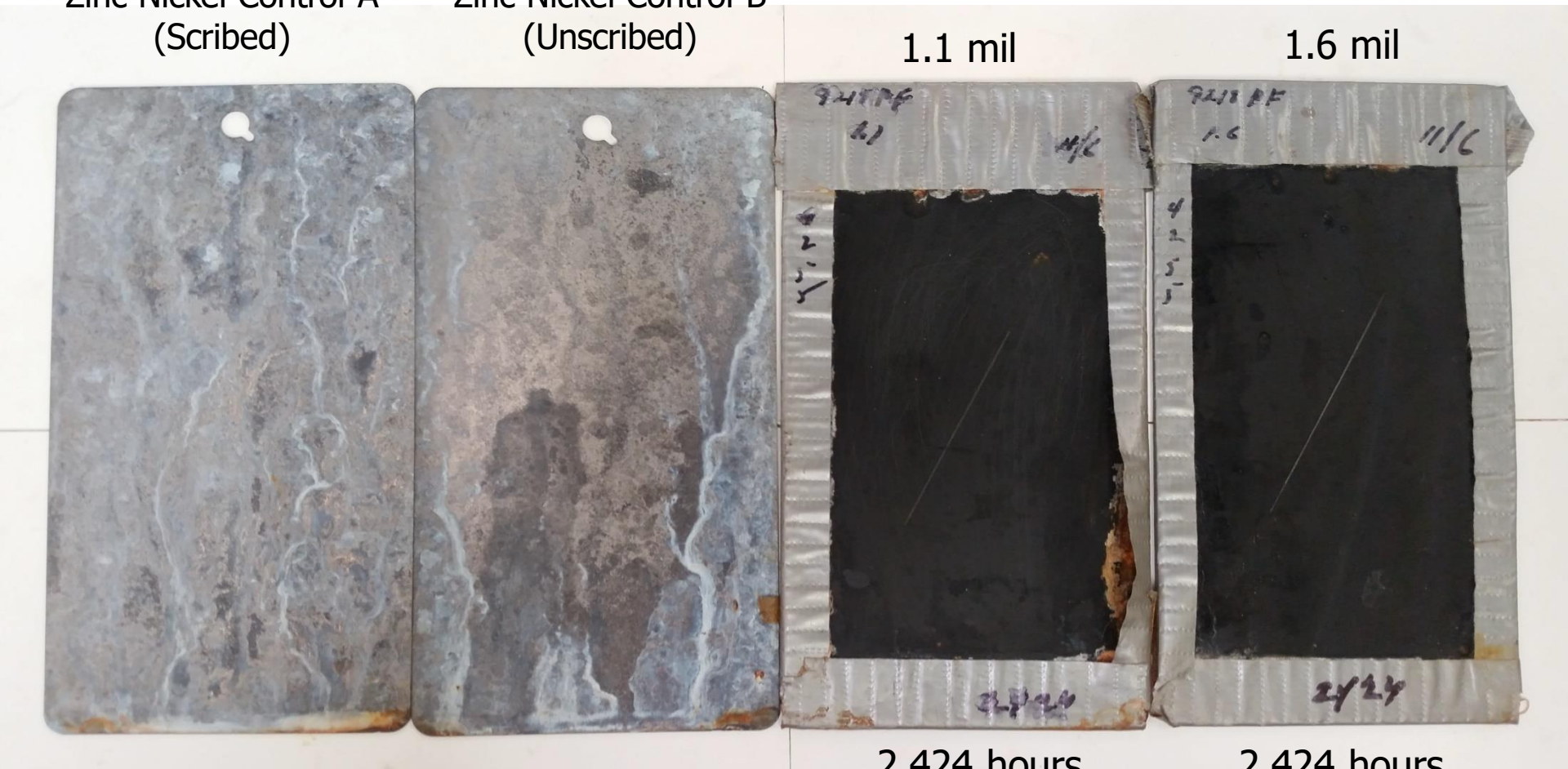
Note: 0/100 is no removal with Permacel Tape.

Zinc Nickel Controls

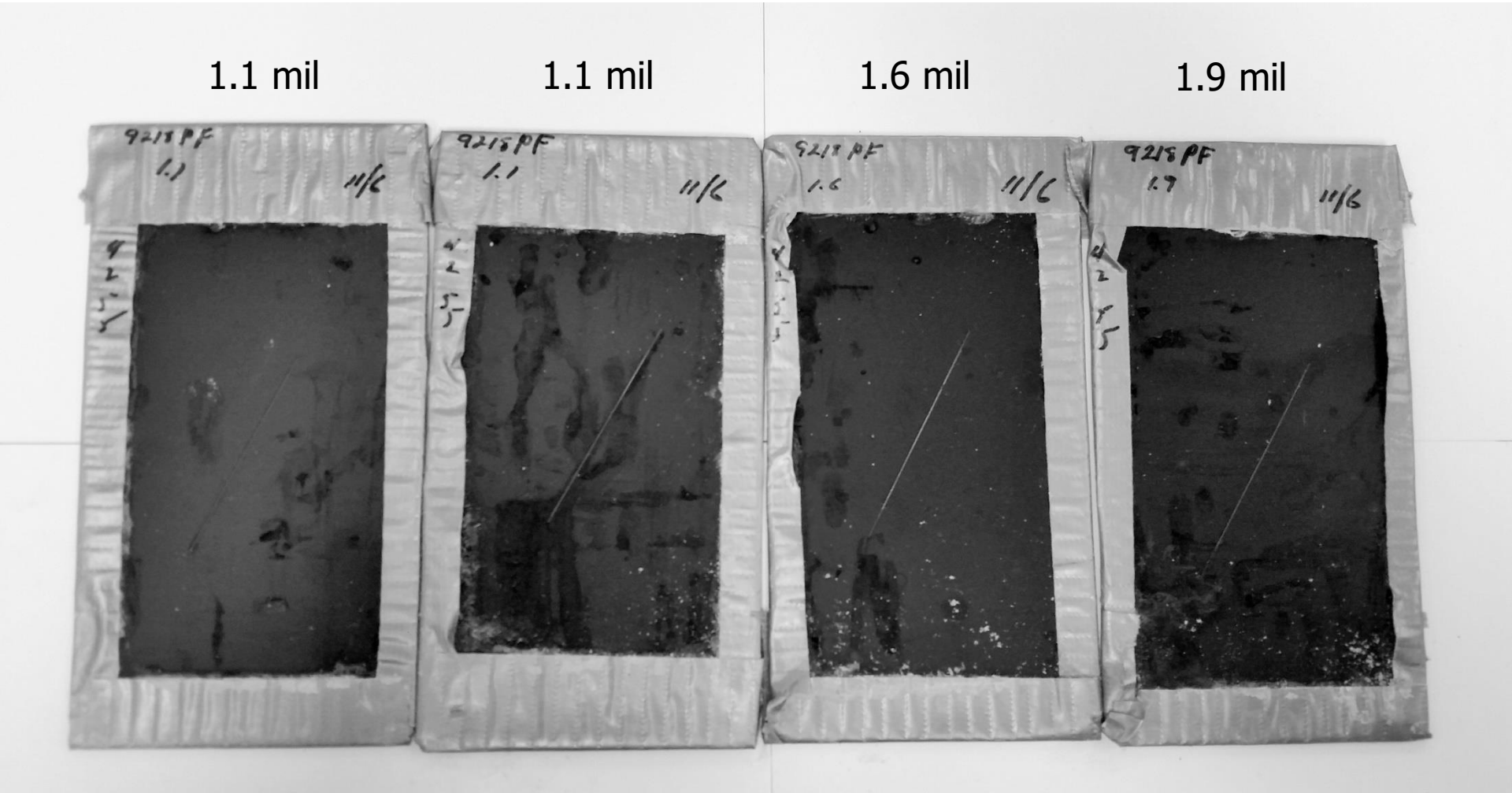
Zinc Nickel Control A
(Scribed)

Zinc Nickel Control B
(Unscribed)

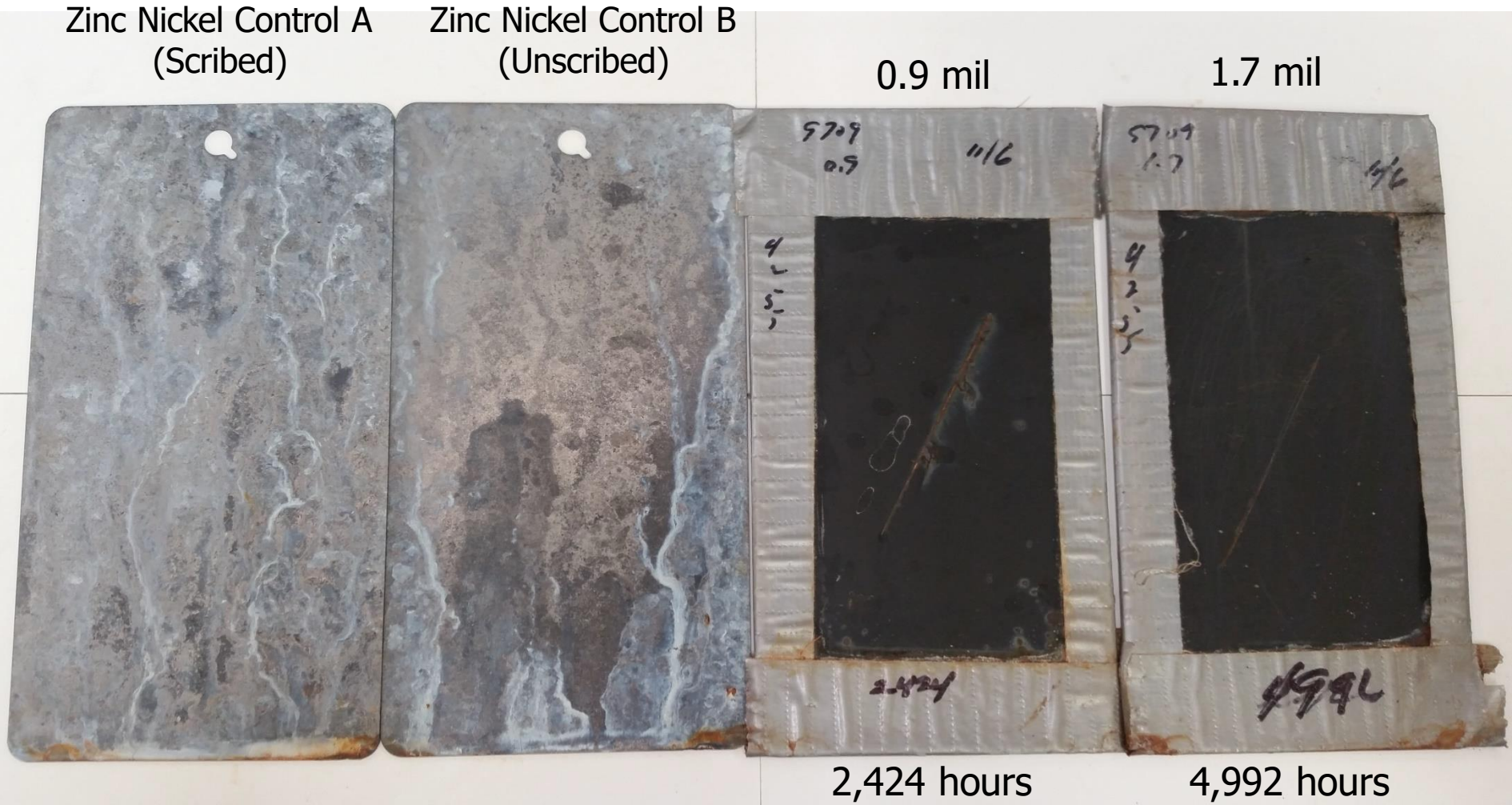
ZnNi + Kalgard 094-9218PF



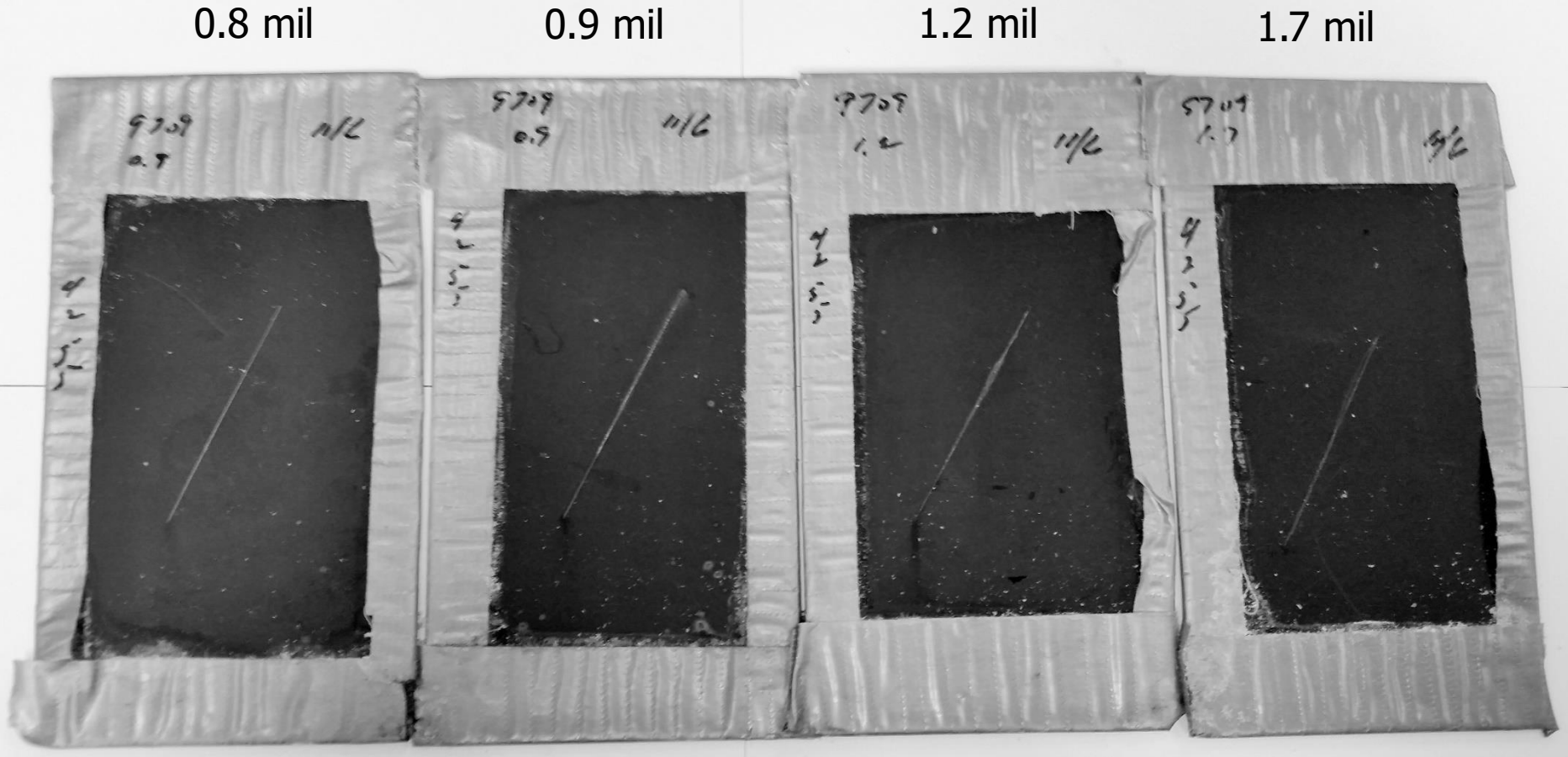
Kalgard 094-9218 PF + ZiNi
(after 2,424 hours Salt Spray)



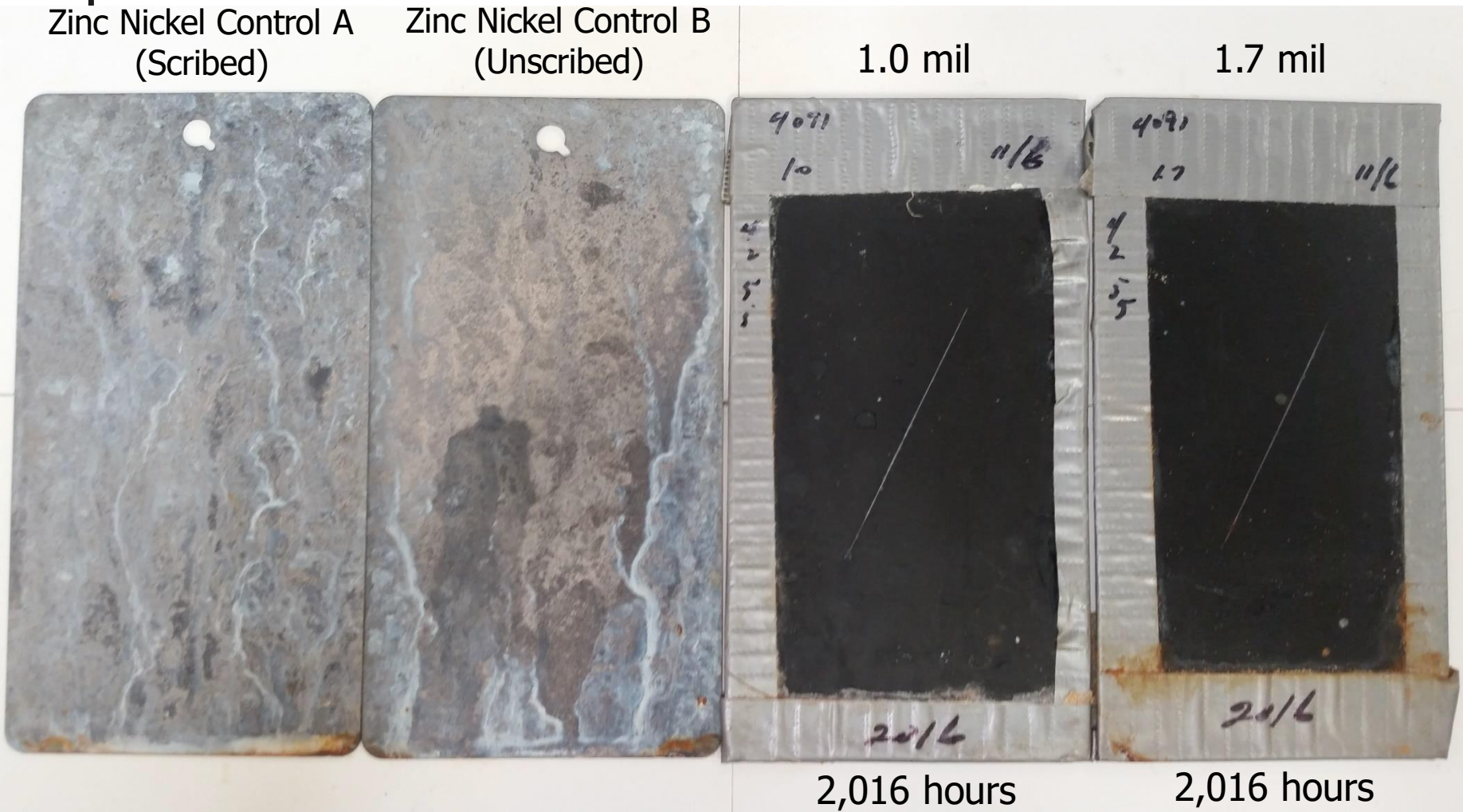
Kalgard 094-9709 + ZiNi



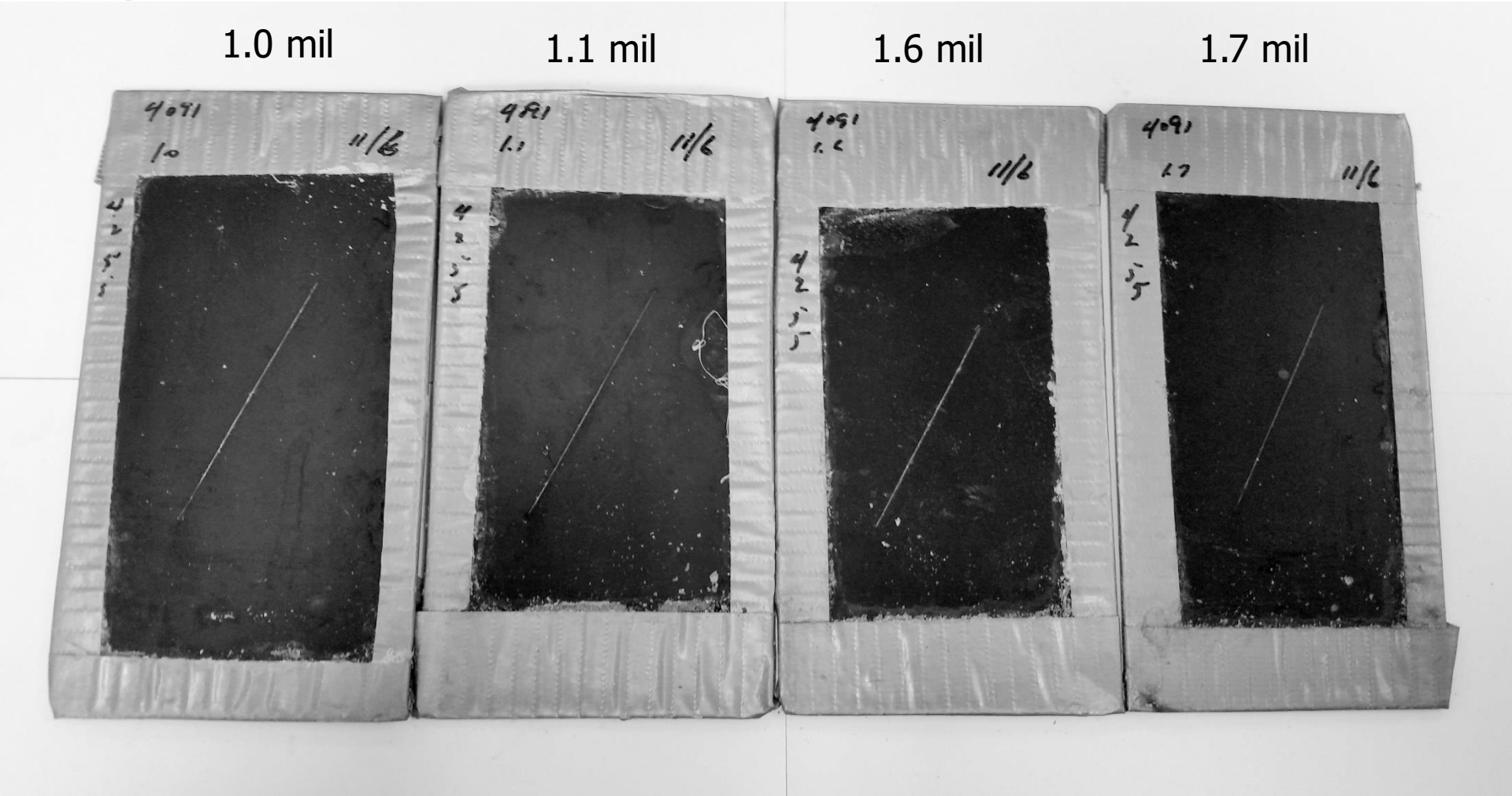
Kalgard094-9709 + ZiNi
(after 4,992 hours Salt Spray)



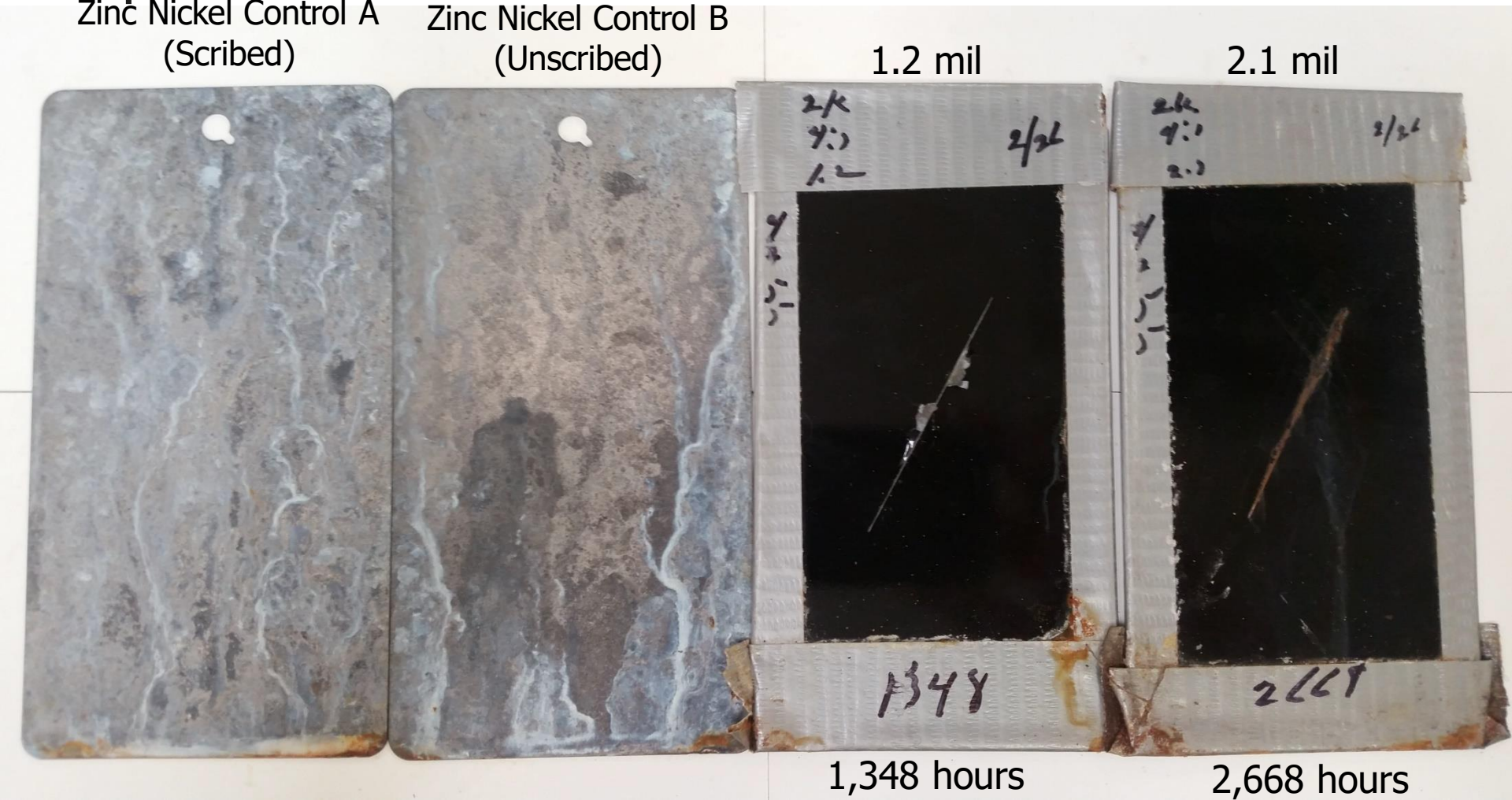
Kalgard 088-94091 + ZiNi



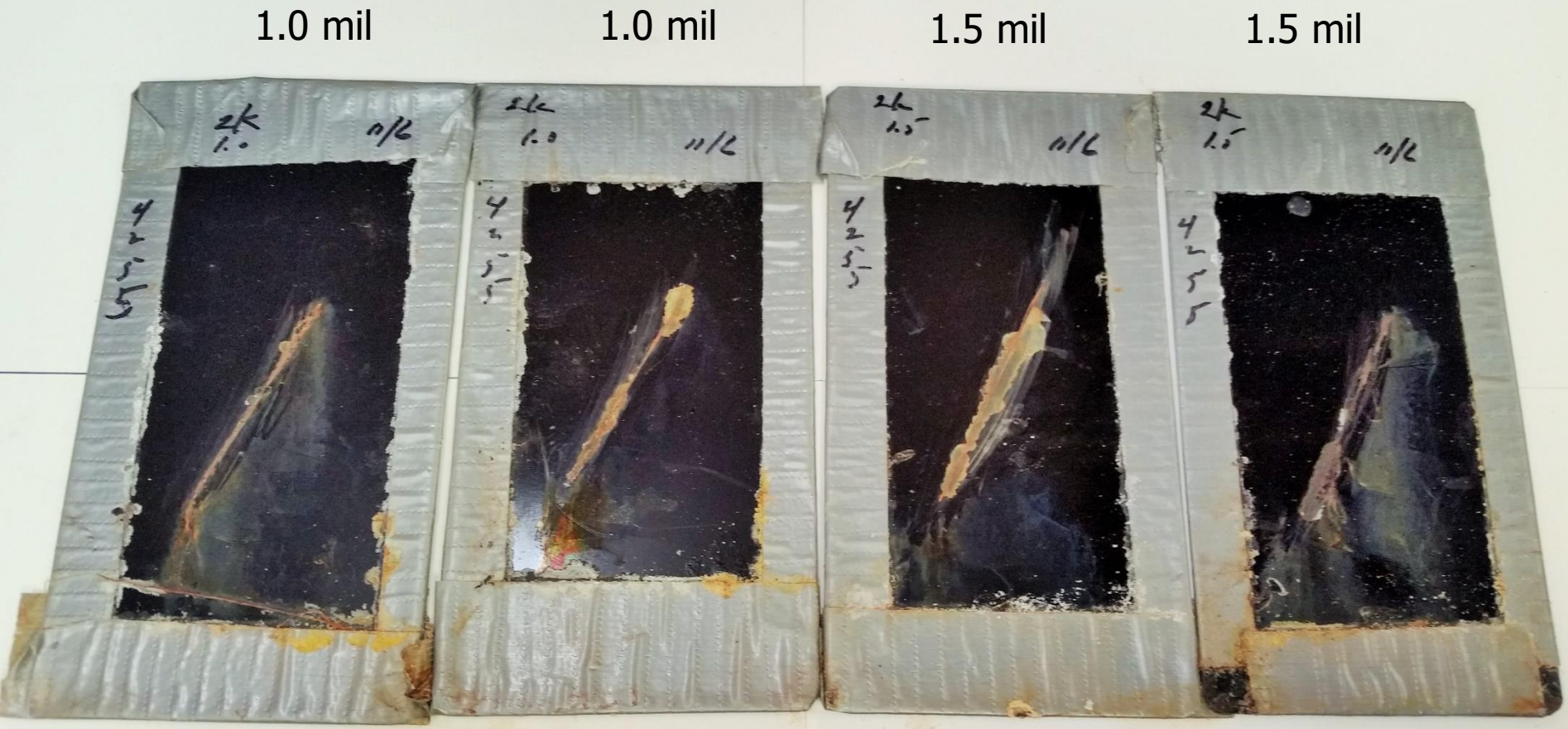
Kalgard 088-94091 + ZiNi
(after 2,016 hours Salt Spray)



Kalgard 821/822 2K Epoxy + ZiNi



Kalgard 821/822 2K Epoxy + ZiNi
(after 2,668 hours Salt Spray)



Summary Data

Kalgard Coating	Salt Spray Hours	Visible Rust	Blistering	Creep
094-9218PF	2,424	None	1mm, few	0 mm
094-9709	4992+	None	None	0 mm
088-94091	2,016	None	1mm, Medium density @2,016 hours	0 mm
821/822 2K	2,668	None	None	7 mm
Control A (Scribed)	4,992	None	N/A	0 mm
Control B (unscribed)	4,992	None	N/A	0 mm

Note: Control A and Control B both showed no red rust but exhibited heavy white visible corrosion.

Conclusions

- Zinc Nickel electroplated panels typically achieve 720 - 1,200 hours NSS having NO red rust, but do exhibit objectionable heavy white corrosion.
- All Kalgard coatings exceeded 2,000 hours Salt Spray resistance, with the following exceeding 2,400 hours:
  - 094-9709 (best performance at 4,992+ hours)
  - 094-9218PF
  - 821-98654/822-08765 2K Epoxy (mixed 4:1 by volume)
- At 2.1 mil DFT and at 2,668 hours salt spray, the Kalgard 2K Black Epoxy 4:1 mix had no evidence of degradation.
- Kalgard 094-9709 had no evidence of degradation at 4,992 hours salt spray and is the best option over zinc nickel plating for exceptional corrosion resistance.

For more information about Kalcor's line of Kalgard® Corrosion resistant coatings:

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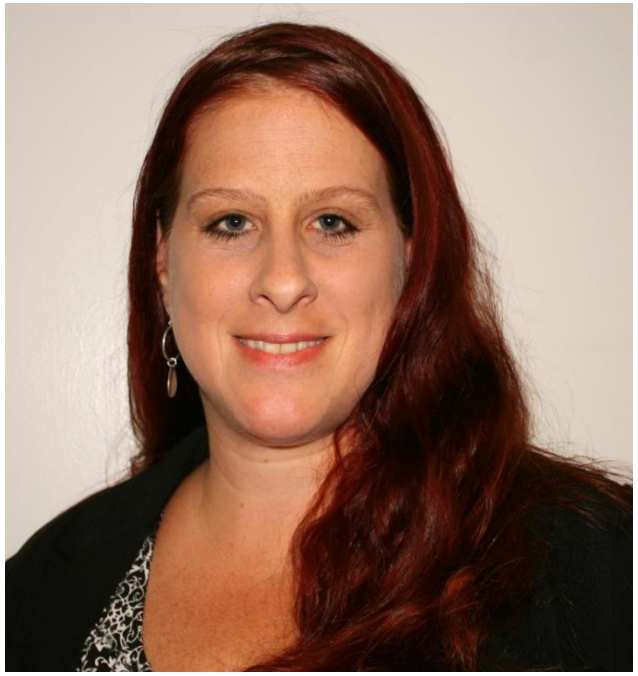

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