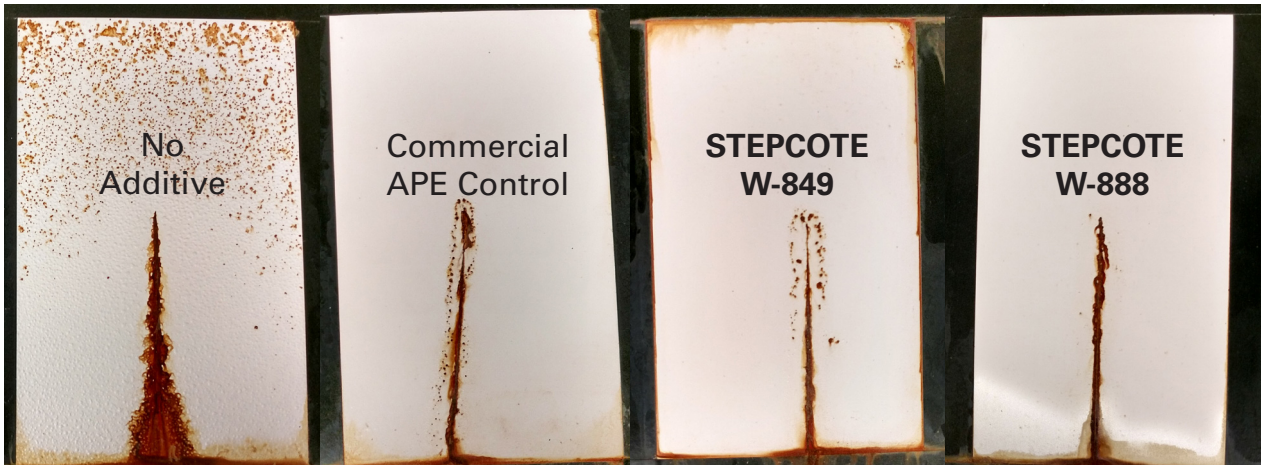
Maximize the efficiency of your additive

Multifunctional Wetting Agents for Enhanced Corrosion Resistance

Corrosion Resistance

The phosphate ester chemistry of STEPCOTE™ W-849 and STEPCOTE W-888 can reduce rust and minimize blistering, enhancing the corrosion resistance in waterborne coatings as shown in the photos below. These Stepan Company products have also demonstrated equivalent performance to a commercial alkyl phenol ethoxylate (APE) control (nonyl phenol 6-mole ethoxylate phosphate ester).



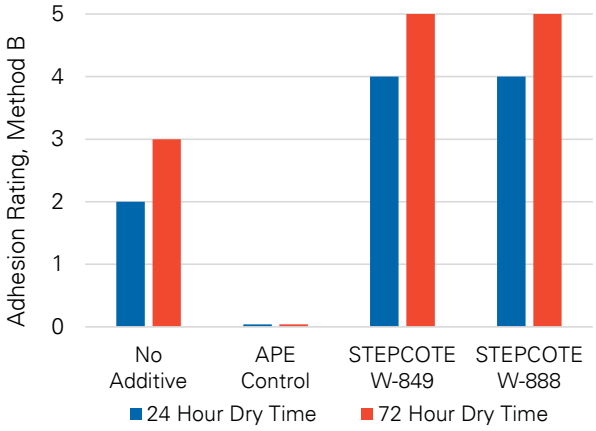
ASTM B117-09: 100 hours on Cold Rolled Steel (CRS) panels, additive dosed at 3 lbs/100 gallons (active)

STEPCOTE W-849 and STEPCOTE W-888 can also improve coating performance in the areas of wet adhesion, wet scrub resistance, gloss and color acceptance.

Durability

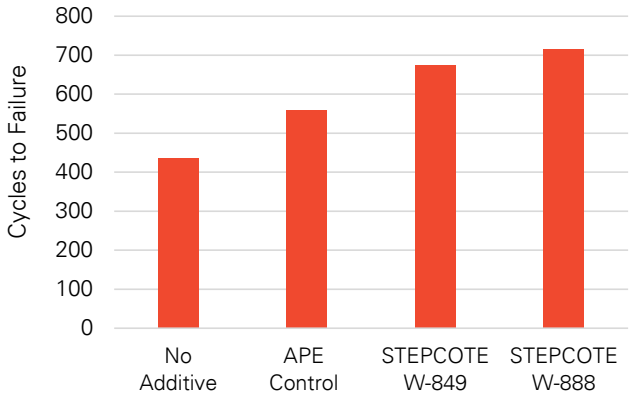
STEPCOTE W-849 and STEPCOTE W-888 have the ability to heighten coating durability compared to a commercial APE control and a coating without an additive. Figure 1 shows improved wet adhesion and Figure 2 shows improved wet scrub performance.

Figure 1. Wet Adhesion Performance



ASTM D3359B: 10 wet mils on CRS panels, 1 hour immersion in water, additive dosed at 3 lbs/100 gallons (active)

Figure 2. Wet Scrub Resistance

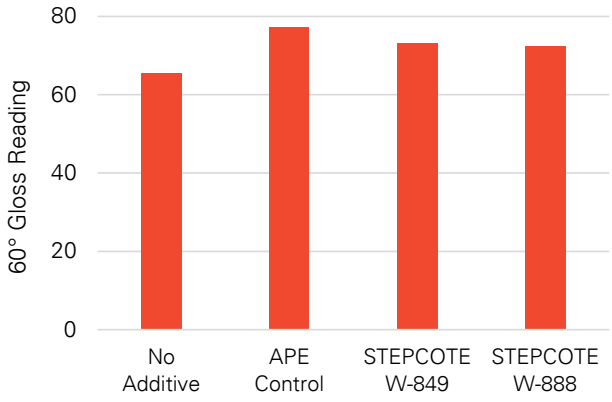


ASTM D2486: additive dosed at 3 lbs/100 gallons (active)

Gloss

STEPCOTE W-849 and STEPCOTE W-888 also demonstrated enhanced gloss development during testing (Figure 3). Both products showed improved 60° gloss readings compared to a coating without an additive and comparable performance to a commercial APE control.

Figure 3. 60° Gloss Development



ASTM D523: additive dosed at 3 lbs/100 gallons (active)

Color Acceptance

STEPCOTE W-849 and STEPCOTE W-888 led to improved delta E and color float readings, demonstrating beneficial impact to color acceptance. Their ability to aid in dispersing organic and inorganic pigments illustrates the versatility these products bring to formulations when compared to a commercial APE control.

Paint Formulation

Interior architectural semi-gloss paint
29.8% PVC, <50 g/L VOC, 33.7% Volume Solids

Component	Pounds	Gallons	% Weight
Grind			
Water	68.00	8.15	6.50
TAMOL™ 165A *(The Dow Chemical Company)*	12.50	1.42	1.20
BYK®-024 *(BYK)*	0.50	0.06	0.05
KATHON™ LX 1.5% *(The Dow Chemical Company)*	1.50	0.18	0.14
TIOXIDE® TR93 *(Huntsman Corporation)*	247.00	7.42	23.61
Letdown			
STEPCOTE W-849 or **STEPCOTE W-888**	3.00	0.35 (0.39)	0.29
Water	17.00	2.04	1.63
Acrylic Latex*	503.00	57.42	48.09
ROPAQUE™ ULTRA *(The Dow Chemical Company)*	44.00	5.14	4.21
TEXANOL™ *(Eastman Chemical Company)*	7.00	0.89	0.67
BYK®-024 *(BYK)*	1.00	0.12	0.10
Ammonia Hydroxide	3.00	0.36	0.29
ACRYSOL™ RM-8W (The *Dow Chemical Company)*	2.50	0.29	0.24
ACRYSOL™ RM-2020NPR *(The Dow Chemical Company)*	18.00	2.07	1.72
Water	118.00	14.15	11.28
Total	1046.00	100.05	100.00

*52% Butyl Acrylate, 46% Methylmethacrylate, 2% Methacrylic Acid

STEPCOTE W-849 and STEPCOTE W-888 can be incorporated during the letdown or post-added to the final formulation. Typical use level is 2 - 6 lbs/100gallon based on active content. Data presented was generated with this formulation.

	Carbon Black		Red Iron Oxide		Phthalo Blue	
Additive	Rub Up, Δ E	Color Float	Rub Up, Δ E	Color Float	Rub Up, Δ E	Color Float
No Additive	0.64	6	1.36	7	0.66	6
APE Control	0.17	8	0.96	9	1.12	7
STEPCOTE W-849	0.21	9	0.48	9	0.18	7
STEPCOTE W-888	0.28	8	0.32	9	0.60	7

Colorant dosed at 2 oz/gallon, additive dosed at 3 lbs/100 gallons (active)

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