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RayCryl® 1247

RayCryl 1247 Technical Bulletin

Self-Crosslinking 100% Acrylic Emulsion

RayCryl 1247 is a 100% acrylic core-shell polymer based on self-crosslinking technology which makes it an excellent choice for high performance interior and exterior architectural paints. RayCryl 1247 is recommended for use in satin to high gloss enamels that require excellent hardness, tack, and blocking resistance. Raycryl 1247 is ideal for use in ultradeep base formulation which incorporates high tinting levels.

Key Features

- Fast hardness development
- Early high temperature block resistance
- Excellent color and gloss retention
- Resistance to dirt pick-up
- Outstanding water resistance
- APEO-free

RayCryl 1247 Typical Physical Properties*

Polymer type	100% acrylic emulsion polymer
Weight solids	49%
Viscosity (Brookfield Model RVT)	850 cps, #3/100 rpm
pH	9.0
Tg (DSC)	26/107°C
MFFT (ASTM D-2354)	18°C
Particle size, micron	0.11
Surfactant Charge	Anionic
Weight per Gallon	8.8 lbs/gal
Freeze Thaw Stability	Do Not Freeze

** These properties are typical, but do not constitute specifications.*

For 50 years Specialty Polymers has been developing state of the art resins for the paint and coatings industry. With more than 300 products to choose from, Specialty Polymers has the right polymer to meet your needs.

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Comparative Testing

White semi-gloss coating formulated with RayCryl 1247 was compared to white base formulated with competitor polymer, both at <50 g/L VOC.

Performance Comparison

White semi-gloss – RayCryl 1247 v. Competitor Polymer, <50 g/L VOC

Polymer	RayCryl 1247	Competitor acrylic polymer
Paint Properties		
pH, ASTM E70	9.1	9.0
ICI Viscosity, ASTM D4287	0.43	0.34
Stormer viscosity, [KU], ASTM D562	110	114
Specular Gloss, ASTM D523, 6 mils		
20 degree gloss	6.5	10.6
60 degree gloss	37.6	43.8
85 degree gloss	77	80.3
Early Water resistance, ASTM D714/B117 Black Leneta scrub panel, 3 mils		
2 hours air dry	**10**	8F
4 hours air dry	10	10
8 hours air dry	10	10
24 hours air dry	10	10

Block Resistance, ASTM D4946, 6 mils

Polymer	RayCryl 1247	Competitor acrylic polymer
24 hours @ 73°F	**10**	7
24 hours @ 120°F	**8**	4
7-days @ 73°F	**10**	9
7-days@ 120°F	**9**	6

Polymer	RayCryl 1247	Competitor acrylic polymer

Print Resistance, ASTM 2064, 6 mils on, Leneta scrub panel

24 hours @ 73ºF	**8**	4
24 hours @ 120ºF	**8**	4
7-days @ 73ºF	**8**	4
7-days @ 120ºF	**8**	4

Scrub Resistance, ASTM D2486, 7 mils

Average scrub cycles	1002	1104

Koenig Hardness, 6 mils, aluminum, 24 hours cure

Average, 24 hours cure	**15**	8
Average, 7-days cure	**19**	8

Crosshatch Adhesion by Tape, ASTM D3359, 6 mils, 24 hours cure

Aged alkyd, dry adhesion, 24 hours cure	5	5
Aged alkyd, wet adhesion, 24 hours cure	3	0
Aged alkyd, dry adhesion, 7-days cure	5	5
Aged alkyd, wet adhesion 7-days cure	**3**	0

Crosshatch Adhesion by Tape, ASTM D3359, 6 mils, 24 hours cure

Primed Hardie board, dry adhesion, 24 hours cure	**4**	3
Primed Hardie board, dry adhesion, 7-days cure	5	5

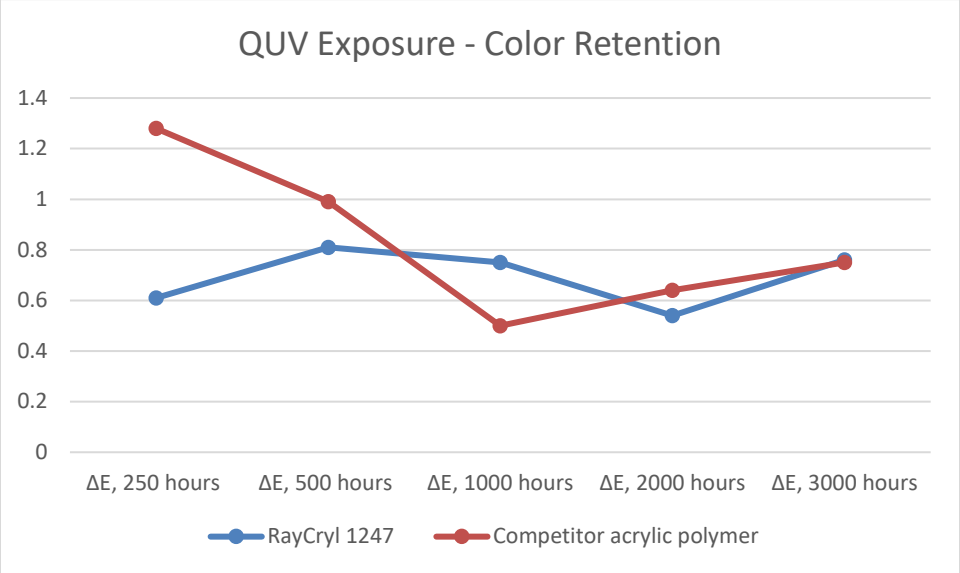
Low Temperature Cure, 45ºF, 6 mil drawdown on scrub panel

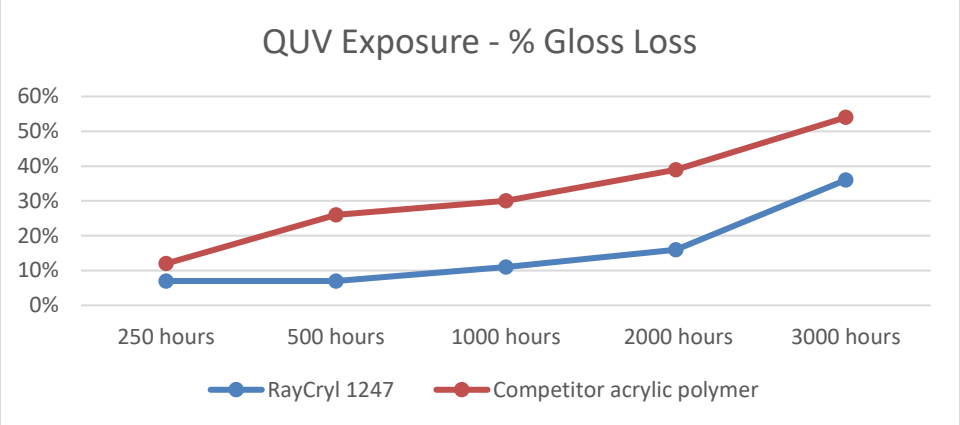
Pass/Fail	Pass	Pass

Flexibility/Mandrel Bend, ASTM D522, 1/4 inch rod

Pass/Fail	Pass	Pass

QUV exposure
Primed Hardie Board





Comparative Testing

Ultradeep gloss coating, tinted with 15% 0 VOC pigment dispersions, based on total weight of the coating. RayCryl 1247 formulation was compared to ultradeep gloss coatings formulated with competitor polymers and a commercial product, all at <50 g/L VOC.

Performance Comparison

Ultradeep Gloss – RayCryl 1247 v. Competitor Polymers and Commercial Product, <50 g/L VOC

Polymer	RayCryl 1247	Competitive Acrylic 1	Competitive Acrylic 2	Commercial Product 1
Paint Properties				
pH, ASTM E70	8.6	8.8	8.5	9
ICI Viscosity, ASTM D4287	1.57	1.44	1.13	1.23
Stormer viscosity, [KU], ASTM D562	95	107	103	113
Specular Gloss, ASTM D523, 6 mils				
20^{o} gloss	42.9	33	44.1	62.9
60^{o} gloss	72.3	69.9	73.4	80
85^{o} gloss	94.1	90.8	93.2	94.9
Block Resistance, ASTM D4946, 6 mils, 24 hour cure				
24 hours @ 73^{o}F	**9**	7	6	5
24 hours @ 120^{o}F	4	5	2	4
7-days @ 73^{o}F	**9**	7	7	6
7-days @ 120^{o}F	**6**	5	2	5
Print resistance, ASTM D2064, 6 mils on Leneta scrub panel				
24 hours @ 73^{o}F	**8**	3	6	3
7-days @ 73^{o}F	**8**	3	6	3
Koenig Hardness, 6 mils, aluminum				
24 hours cure	**15**	6	13	5
7-days cure	**22**	8	18	5

Polymer	RayCryl 1247	Competitive Polymer 1	Competitive Polymer 2	Commercial Product 1

Crosshatch Adhesion by Tape, ASTM D3359, 6 mils, 24 hour cure

Aged alkyd, dry adhesion	**4**	2	3	0
Aged alkyd, wet adhesion	**3**	0	0	0

Early Water resistance, ASTM D714/B117 black scrub panel, 3 mils

4 hours air dry	10	6MD	10	10
6 hours air dry	10	8D	10	10
24 hours air dry	10	10	10	10

Low Temperature Cure, 45ºF, 6 mil drawdown on scrub panel

Pass/Fail	Pass	Pass	Pass	Pass

Flexibility/Mandrel Bend, ASTM D522, 1/4 inch rod, 7 day cure

Pass/Fail	Pass	Pass	Pass	Pass

Scrub Resistance, ASTM D2486, 7 mils, black scrub panel, 7 day cure

Average scrub cycle	648	760	690	750

Surfactant leaching, 6 mils on black scrub panel

4 hours, Rating (0-5); 5 Best	**3**	3	1	2