

**ISOCRYL® EP-550G TECHNICAL BRIEF #3:
GLOSS MODIFICATIONS WITH POLYESTER BLENDS**



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THE EDGE OF INNOVATION

Isocryl® EP-550G is often used to produce coatings with a very smooth, UV resistant, matte finish. This Technical Brief presents a novel technique to prepare weatherable powder coatings with a broad range of glosses (60° glosses from 5-40%) while maintaining excellent film properties.

When using Isocryl EP-550G as a matting agent, it has been observed that polyester resins with lower viscosities produce low gloss coatings, while those with higher viscosities produce high gloss coatings. By varying the low-viscosity/high viscosity ratio of the polyester component of the formulation, it is possible to produce coatings with a wide range of gloss values.

The table below contains six formulations that demonstrate how to produce coatings with the varying levels of gloss. The actual gloss achieved will be dependent on the polyester used, the level and type of pigments, and the level and type of inert pigments. Thus, each formula will require some fine-tuning to assure that the desired gloss level is achieved.

STARTING POINT FORMULATIONS

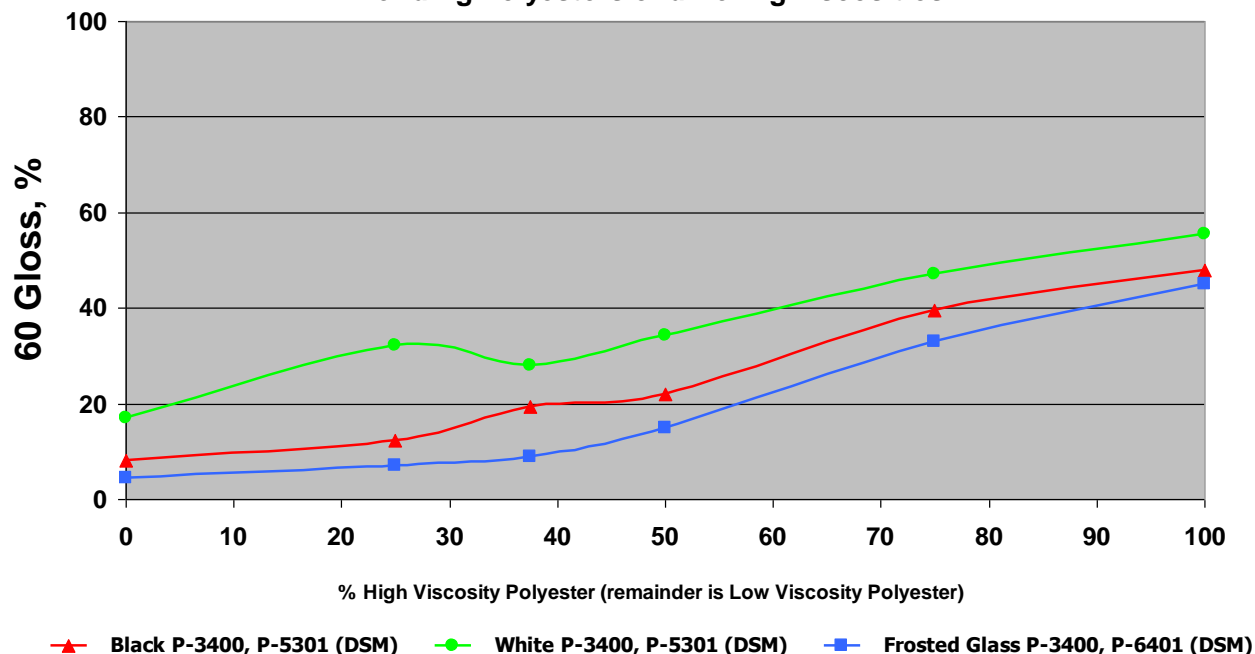
WHITE COATING	1	2	3	4	5	6
Uralac P-3400		12.70	19.07	25.43	38.15	50.85
Uralac P-5301	50.85	38.15	31.78	25.43	12.70	
Isocryl EP-550G	16.95	16.95	16.95	16.95	16.95	16.95
Escat 22	1.70	1.70	1.70	1.70	1.70	1.70
TiPure R-960	30.00	30.00	30.00	30.00	30.00	30.00
Benzoin	0.50	0.50	0.50	0.50	0.50	0.50
Ratio P-3400: P-5301	0: 100	25: 75	37.5: 62.5	50:50	75: 25	100: 0
Gloss 20°	2.3	4.0	3.4	4.4	7.3	10.8
Gloss 60°	17.1	32.3	28.0	34.2	47.2	55.5
Gloss 85°	68.5	76.4	74.7	69.2	80.5	76.6
Reverse impact (in.lb)	160	160	160	160	160	160

BLACK COATING	1	2	3	4	5	6
Uralac P-3400		12.60	18.94	25.25	37.90	50.50
Uralac P-5301	50.50	37.90	31.56	25.25	12.60	
Isocryl EP-550G	16.82	16.82	16.82	16.82	16.82	16.82
Escat 22	1.68	1.68	1.68	1.68	1.68	1.68
Barium Sulfate	30.00	30.00	30.00	30.00	30.00	30.00
Carbon Black	1.00	1.00	1.00	1.00	1.00	1.00
Ratio P-3400: P-5301	0: 100	25: 75	37.5: 62.5	50:50	75: 25	100: 0
Gloss 20°	0.5	0.7	1.2	1.4	4.1	6.3
Gloss 60°	8.2	12.3	19.4	21.9	39.5	47.8
Gloss 85°	61.5	65.2	71.5	75.3	80.7	82.4
Reverse impact (in. lb)	160	160	160	160	160	160

FROSTED GLASS	1	2	3	4	5
Uralac P-3400		12.80	25.60	38.40	51.20
Uralac P-6401	51.20	38.40	25.60	12.80	
Isocryl EP-550G	17.10	17.10	17.10	17.10	17.10
Escat 22	1.70	1.70	1.70	1.70	1.70
Barium Sulfate	30.00	30.00	30.00	30.00	30.00
Ultramarine Blue	0.125	0.125	0.125	0.125	0.125
Ratio P-3400: P-6401	0: 100	25: 75	50:50	75: 25	100: 0
Gloss 20°	0.5	0.7	1.4	4.1	6.3
Gloss 60°	8.2	12.3	21.9	39.5	47.8
Gloss 85°	61.5	65.2	75.3	80.7	82.4
Reverse impact (in. lb)	160	160	160	160	160

RESULTS

Gloss Modification of EP-550
Blending Polyesters of differing viscosities



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CONCLUSIONS

Through the proper blending of polyester resins, it is possible to produce exterior-grade powder coatings having glosses ranging from 10% to 50%. These coatings have all of the appearance, mechanical, chemical resistance and UV resistance properties that one would expect from a polyester/TGIC coating formulation, with the added benefit of being able to formulate at low to medium glosses.

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