LUMIFLON®
FEVE RESIN

LUMIFLON LF-710F



AGC
Your Dreams, Our Challenge

LUMIFLON® LF-710F

AGC Inc. developed LUMIFLON® fluoropolymers in 1982. These unique products are the first solvent-soluble fluoropolymers in the world. LUMIFLON polymers are made of alternating fluoroethylene and alkyl vinyl ether segments (FEVE). The fluorinated segments provide outstanding UV stability, weather resistance, and chemical resistance, while the vinyl ether segments provide solvent compatibility and cross-linking sites.

LUMIFLON LF-710F is a fluoroethylene vinyl ether (FEVE) resin designed for weather-resistant, high performance powder coatings. LF-710F resin has hydroxyl functionality allowing for crosslinking with polyisocayanates or amino curing agents. Powder coatings based on LF-710F exhibit excellent durability in exterior weathering exposure, resisting chalk, color fade, and gloss loss.

FEVE resins tend to have good adhesion to metal. Depending on the service environment, they may be used to coat directly over metal without the use of primer.

Potential applications for coatings made with LF-710F include architectural (window frames and construction panels), heavy equipment coatings, and clear coats for automotive and aerospace applications. A wide selection of pigments (organic & inorganic) can easily be dispersed into LF-710F resin systems.

Typical Physical Properties

Property	Typical Value
Appearance	Pale yellow flakes
% Solids	> 98
Glass Transition Temp	~ 52°C
Softening Point	136°C
Hydroxyl Value	46 mgKOH/g polymer
Hydroxyl Equivalent on polymer	1220
Acid Value	0
Specific Gravity	1.4

Features

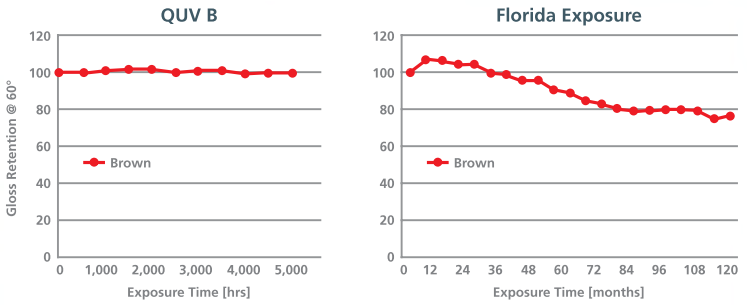
- Exhibits outstanding weathering and chemical resistance
- Wide gloss range: can be used either in metallic- or matte-finish powder coatings
- Soluble in various common solvents: may be used in solvent-based coatings too.
- Can be formulated into coatings that meet AAMA2605
- Allows for a wide color palette
- Improves dirt pickup resistance

Starting Point Formulation: High Gloss Brown Powder Coating

Trade Name	Type	Parts by Weight
LUMIFLON LF-710F	Resin	377.5
DBTDL 1/100 Catalyst 1.1	Catalyst	1.1
Byk® 360P (Byk)	Leveling Agent	5.0
Benzoin®	Degassing Agent	2.0
Brown 30C888	Pigment	50.0
Vestagon® B 1530 (Evonik)	Curing Agent	90.5
Staphyloid® AC4030	Impact Modifier	46.8
Total		572.9

Process Conditions:
Pre-mix: Strand S102DS Lab Grinder (5 sec)
Extrusion conditions: Baker Perkins MP24PC Integra
%Feed: 20
RPM: 300
Zone 3/4/5/6: 190 to 250°F
Torque (%): ~50
Grind: Retsch Ultra Centrifugal Mill ZM200, (250 µm screen)
Sieve: Retsch AS 200 Control (90 µm)
Spray: Encore® LT Manual Powder Spray Systems (voltage 60 KV)
Cure condition: 20 minutes at 200°C
Substrate: acid chromate treated aluminum
Film thickness: 50-60 microns

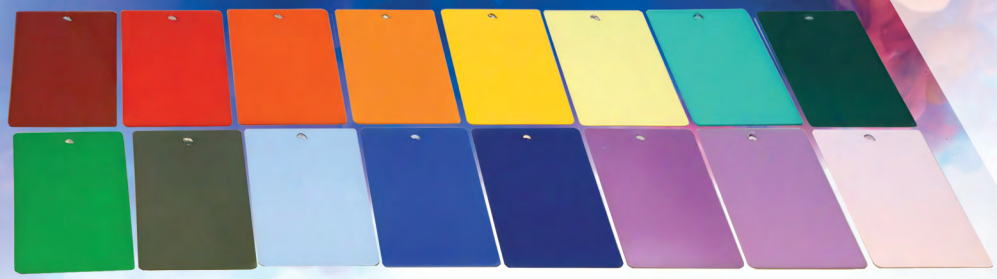
Accelerated Weathering Data



Accelerated and Natural Exposure Gloss Retention

Results

Property	Result
60° Gloss (ASTM D523)	74
Persoz Hardness (ASTM D4366)	345 seconds
Direct Impact Resistance (ASTM D2794)	80 in-lbs (2.731 mil film thickness)
Crosshatch Adhesion (ASTM D3359)	5B



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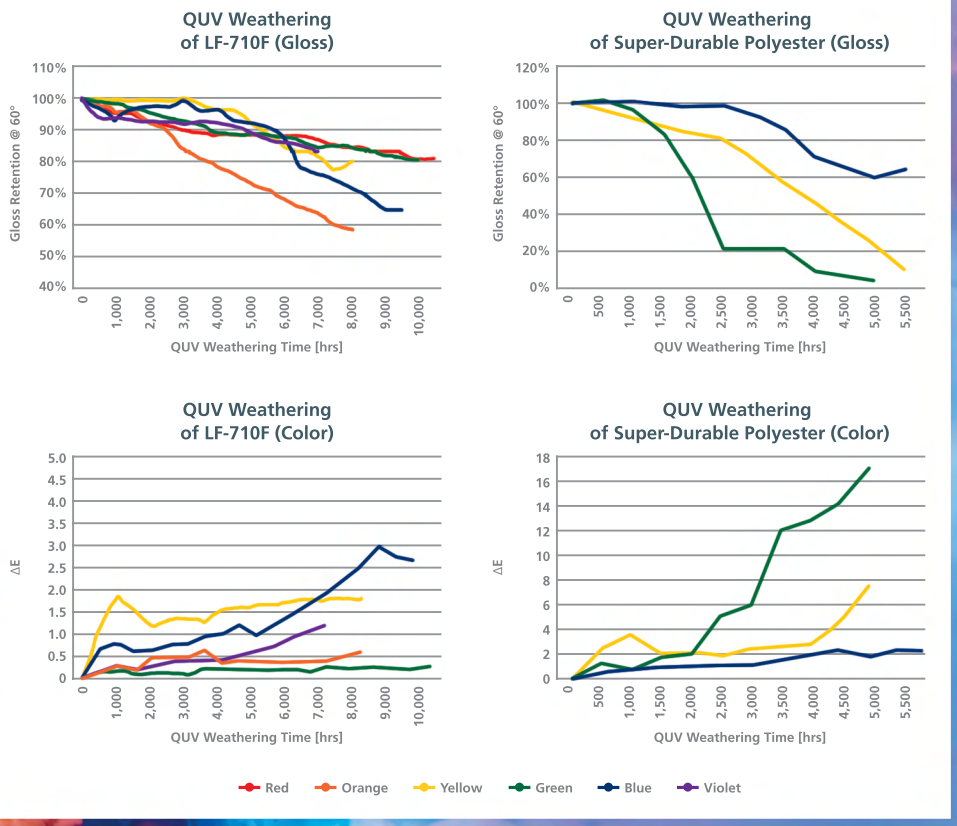
LUMIFLON LF-710F in Pigmented Systems

Pigment colors red, yellow, green, blue, and violet in mass tone or tint have met FGIA AAMA 2605 specifications in accelerated weathering for 10,000 hours. AAMA 2605 is the highest standard by the American Architectural Manufacturers Association (AAMA).

In addition, these selected powder systems can meet physical testing qualifications for AAMA 2605. Orange was still unable to meet AAMA 2605 specifications for weathering.

Property	Red	Orange	Safety Yellow	Hartford Green	Cobalt Blue	Violet
Color Indexes	PR254	PY109, PO73, PR254, PW6	PY227, Pr29, BY53, PW6	PB29, PG26, PG17, PW6	PB29, PB15:6, PV23, PW6	PV14
PCI Rating	6	4	5	7	3	4
60° Gloss (ASTM D523)	83.9	84.0	81.4	77.2	64.2	79.1
Crosshatch Adhesion (ASTM D3359)	5B	5B	5B	5B	5B	5B
Mandrel Bend (1/8")	Pass	Pass	Pass	Pass	Pass	Pass

Accelerated Weathering Data



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