

ZEFFLE S-7542A (Developmental)

FEVE Resin-Low VOC

Fluoropolymer, Weather, Chemical/
Solvent, and Stain Resistant Coating

Characteristics

Low VOC Solventborne copolymer of tetrafluoroethylene and vinyl monomer

Chlorine free

Excellent weather resistance with decades of performance

Anti-corrosion, chemical resistance, and staining reduction / elimination

Various gloss and colors can be obtained

Curing from room temperature to 150°C

Cured with polyisocyanate or melamine-type crosslinking agents

Applications can be performed by various methods, including spraying, brushing, roller painting and in roll to roll processes

Low vapor permeability

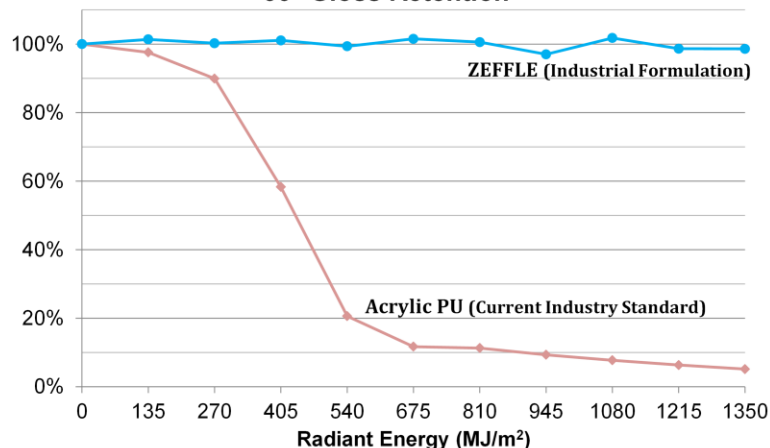


Hangzhou Bay Bridge with ZEFFLE Topcoat:

Opened in 2008 (36 km)

Accelerated Xenon Arc Testing

Intensified* ASTM G-155 Cycle 1 60° Gloss Retention



*Intensity = 1.5 W/m² @340 nm
(Standard Intensity = 0.35 W/m²)

Properties*	Value
Formulation Properties	
Pencil Hardness (ASTM D3363)	F (1-2mils DTM)
60° Gloss (ASTM 523)	80
Flexibility (ASTM D522)	>30%
Direct Impact (ASTM D2794)	>80 in lbs.
Salt Fog (ISO 12944)	Pass
Resin Properties	
Resin Viscosity (25°C; 10 sec ⁻¹)	50,000 cps
Molecular Weight	Moderate
Resin Solids (wt%)	75%
Tg (°C)	25-28
OH Value (mg KOH/g polymer)	55-65
Acid Value (mg KOH/g polymer)	< 5
Solvent Blend	t-butyl acetate/ n-butyl acetate
VOC (Calculated via EPA Method 24)	94 g/L

*Typical properties are not suitable for specification purposes.

Low VOC ZEFFLE Starting Point Formulation:

Mill Base:

Ingredient	Function	Amount (%)
ZEFFLE S-7542A	Resin	72.5
E-Sperse JT-92	Dispersant	1.0
Ti-Pure 706 ¹	Pigment	26.5
Total		100.0

¹DuPont

Let Down:

Ingredient	Function	Amount (%)
Mill-base		79.2
t-butyl acetate	Solvent	20.8
Total		100.0

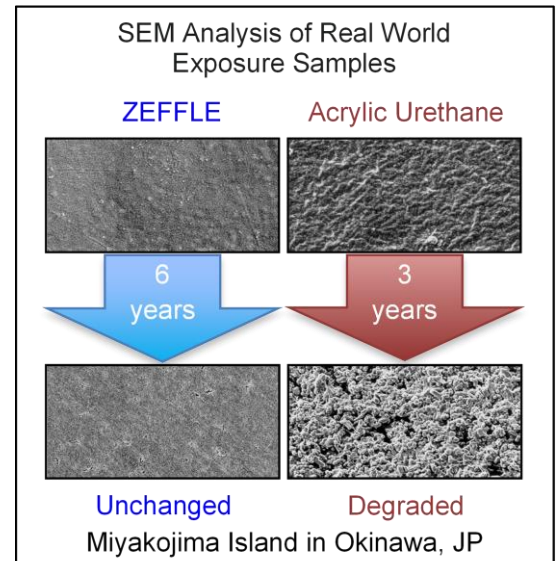
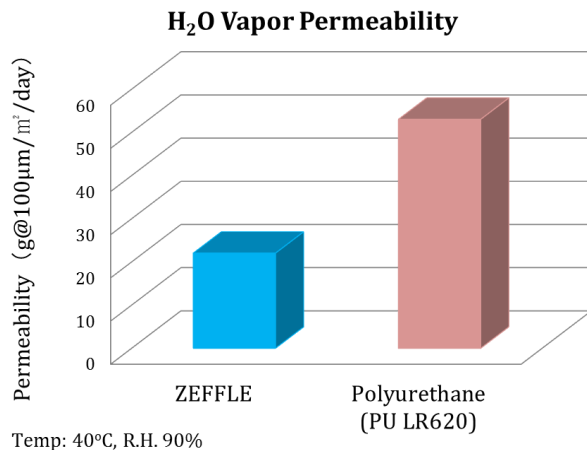
Paint Formulation:

Ingredient	Function	Amount (%)
Let Down		84.3
Desmodur N3300A ² (50% in t-butyl acetate)	Crosslinker	15.7
Total		100.0

²Bayer Material Science

Formulation Properties:

Property	Value
Solids Content	62.5%
P/B Ratio	0.4
VOC (calculated)	81 g/L 0.68 lb/gal



Chemical Resistance Comparison Chart

(Immersion Testing)

	Test Conditions	ZEFFLE	Current Acrylic Silicone	Current Acrylic Urethane
8% Buffered HF	1 hr @ RT	A	B	C
50% HF	1 hr @ RT	A	C	C
60% Sulfuric Acid	24 hr @ RT	A	A	A
	2 hr @ 60°C	A	A to B	B
50% Nitric Acid	2 hr @ RT	A to B	C	C
35% HCl	2 hr @ RT	A	A	A
50% Acetic Acid	2 hr @ RT	A	A to B	A to B
10% NaOH	14 days @ RT	A	A to B	A to B
10% H₂O₂	14 days @ RT	A to B	B	C
MEK	24 hr @ RT	A	A to B	A to B
Butyl Acetate	24 hr @ RT	A	A to B	A to B
Chloroform	24 hr @ RT	A	A to B	B
Petroleum Benzene	24 hr @ RT	A	A to B	B

Notes: A (Excellent), B (Fair), C (Poor)