

EARLY HOT BLOCK RESISTANCE IN NEAR-ZERO VOC FORMULATIONS WITHOUT FLUOROSURFACTANTS

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12 years in the coatings industry

Background in paint formulation and polymer synthesis

Focused on Architectural market applications

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Contact information

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What are PFAS?

Common Terms

PFAS.....

PFC.....

PFOA.....

PFOS.....

Definitions

Per or Poly-fluorinated alkyl substances

Perfluorochemicals

Polyfluorooctanoic Acid

Perfluorooctansulfonic Acid

Regulation of Fluorinated Materials

State and Federal Activity

- **US EPA** published “PFAS Strategic Roadmap: EPA’s commitment to action”
 - “[Reduce] Use and harmonize actions under all available statutory authorities to control and prevent PFAS contamination and minimize exposure to PFAS during consumer and industrial uses.”
 - Reduced drinking water health advisory of certain PFAS from 70ppt down to 0.02ppt or lower
- **Maine** (LD1503) passed July 15, 2021 – “PFAS in consumer products”
 - Register and label any consumer product with any level of PFAS 1/1/2023.
 - **Bans all consumer products with any level of PFAS 1/1/2030**
 - ACA has requested a delay of reporting implementation by 1 year
- **California** (AB2247) currently moving through legislature, passed House:
 - Proposed implementation 7/1/2025
 - Annual reporting of any PFAS entering California in the prior year
- Multiple states have issued executive orders to minimize purchase of PFAS containing materials and to inquire about PFAS content for any new contracts.



EPS[®] 2786



EPS 2786

Near-Zero VOC Latex Without Fluorosurfactants

- Self-crosslinking all-acrylic film-forming polymer
- Exceptional choice for high-performance gloss interior and exterior architectural DIY or professional paints
- Versatile polymer recommended for use in semi-gloss to high gloss enamels that require exceptional hardness and tack resistance
- White/pastel bases and fully tinted clear/neutral bases.
- Ideal for institutional, commercial, or other high-traffic areas.
- Formulated without the use of intentionally added fluorosurfactants

Specifications

Weight Solids	48.0 +/- 0.7%
Weight/Gallon	8.85 +/- 0.1
pH	8.5 – 9.0

Typical Properties

Volume Solids	45.0 +/- 0.7%
MFFT	21° C

Suggested Coalescing Solvent(s)

(% Solvent on Binder Solids – Pass 40°F LTC)

Texanol and/or EPS 9147 (White Base)	9-11%
Texanol and/or EPS 9147 Ultra-Deep Base (tinted)	3-5 %

EPS 2786 – High Performance Applications

Commercial and Institutional Applications

- Rapid return to service
- Extended Service Life
 - Fast hardness development
 - Abrasion resistance
 - Washability
- Low odor
- Low dry film emissions



EPS 2786 Semi Gloss Pastel Formulation

Pounds	Gallons	Raw Material
95.0	11.4	Water
10.0	1.13	Dispersant
2.0	0.24	Nonionic Surfactant
2.0	0.23	Defoamer
3.0	0.33	Biocide
250.0	7.32	Dry TiO2
10.0	0.46	Filler
3.0	0.15	Clay
554.6	62.9	EPS 2786
29.5	3.37	EPS 9147*
64.1	7.70	Water
1.0	0.11	Defoamer
1.0	0.13	Ammonium Hydroxide
10.0	1.20	Sodium Nitrite 4%
10.0	1.04	Fungicide
20.0	2.18	HEUR Thickener (ICI)
1.0	0.11	HEUR Thickener (KU)
1066.3	100.00	Totals

*Low VOC Coalescent

Formulation Properties

Weight Solids	54.3%
Volume Solids	41.6%
Pigment Weight	24.7%
Pigment Volume Conc.	21.8%
Pigment/Binder	0.98
Calculated VOC	3 g/L
Weight/Gallon	10.66 lb/gal

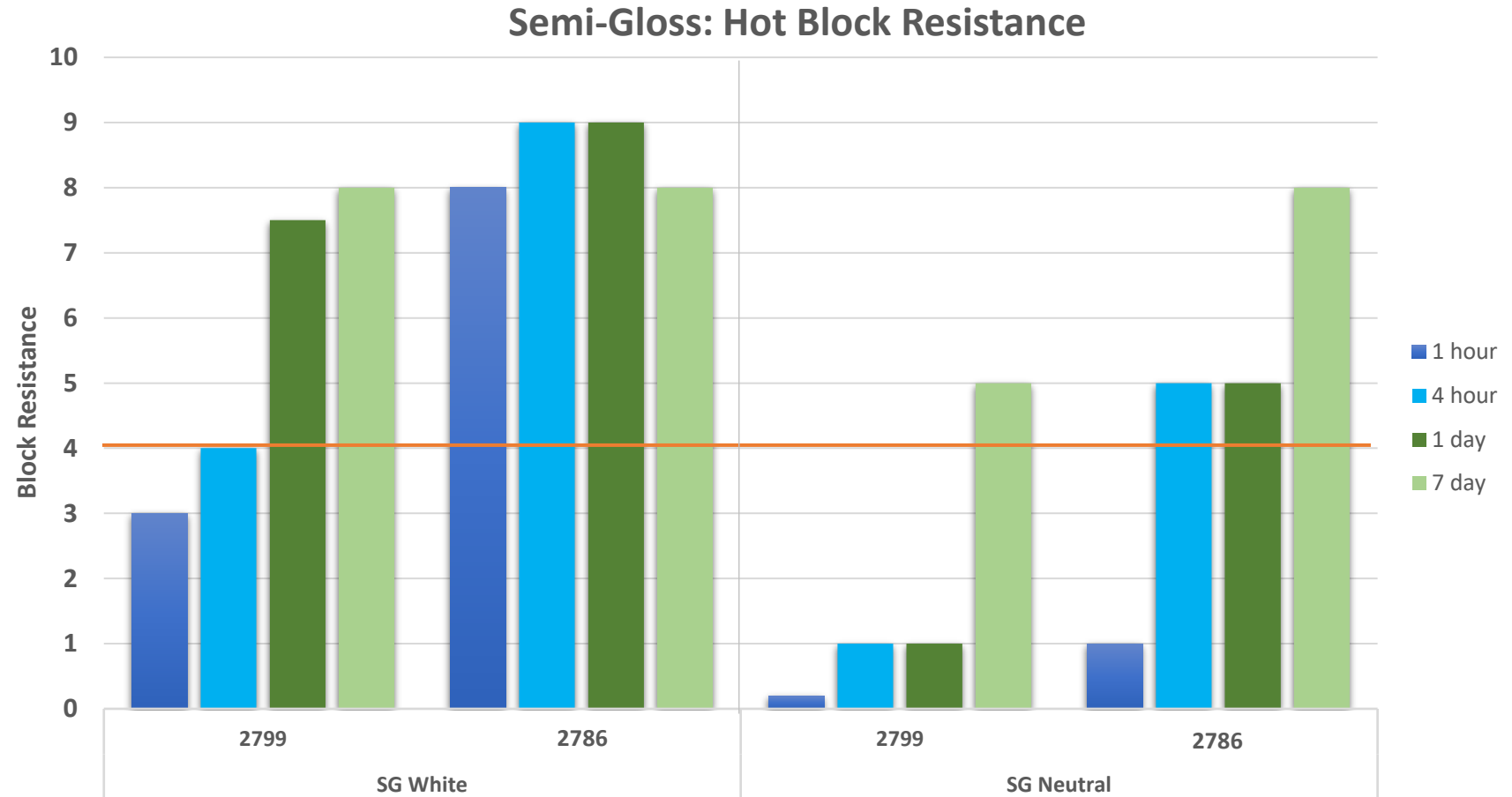
Typical Properties

Viscosity	90 – 95 KU
pH	8.5 – 9.5
Color	White
Gloss at 60°	60-65
Gloss at 20°	25-30

EPS 2786 – Same Day Block Resistance

Hot Block Test

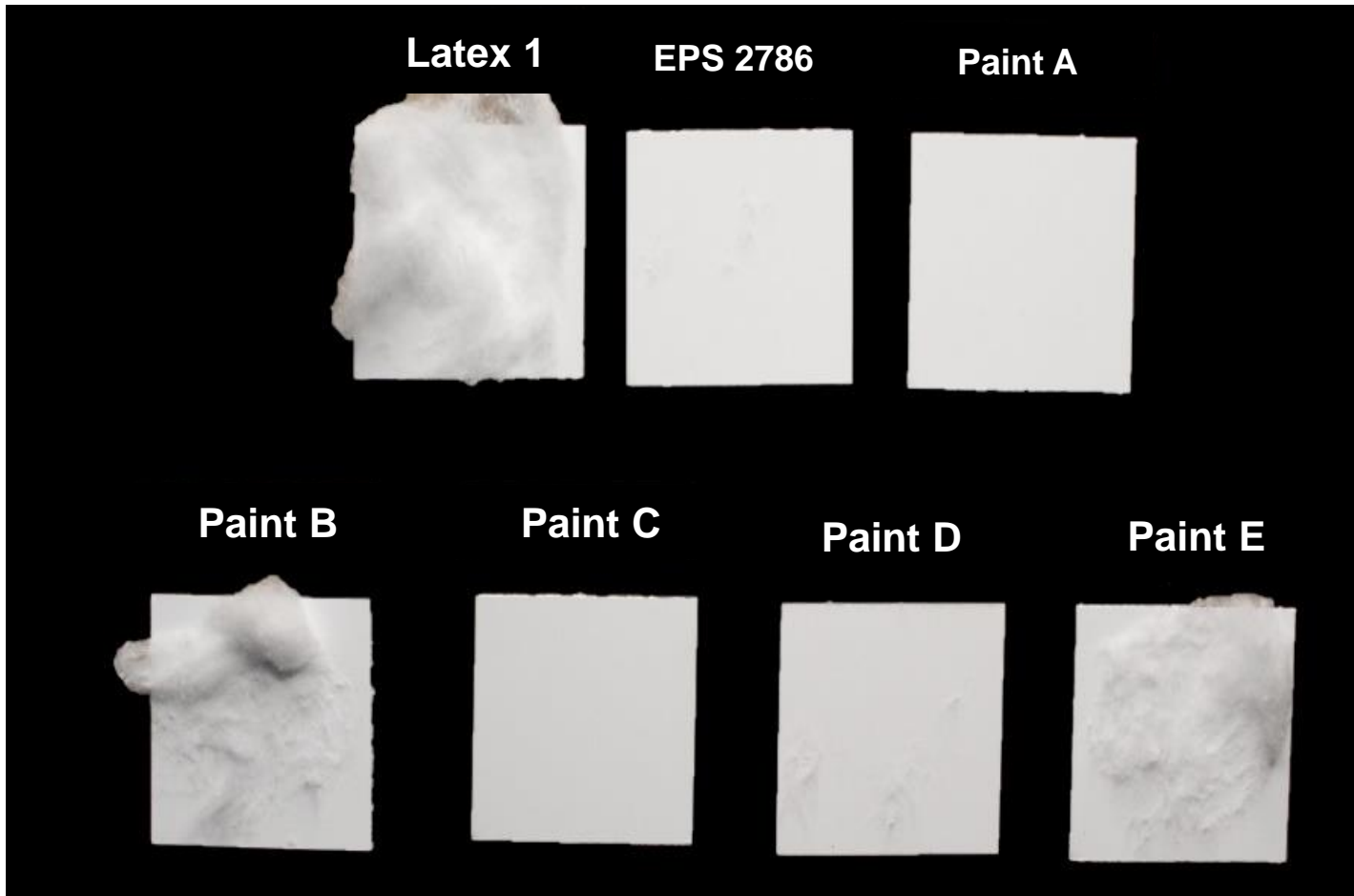
- Dry at 70F/50rh
- 1000g weight
- 30 min at 120F
- 30 min at RT



1-hour HT block resistance in whites / 4-hour HT block resistance in tinted neutral base formulations

EPS 2786 – Cotton Ball Tack Test

<50 g/L VOC SG White Base

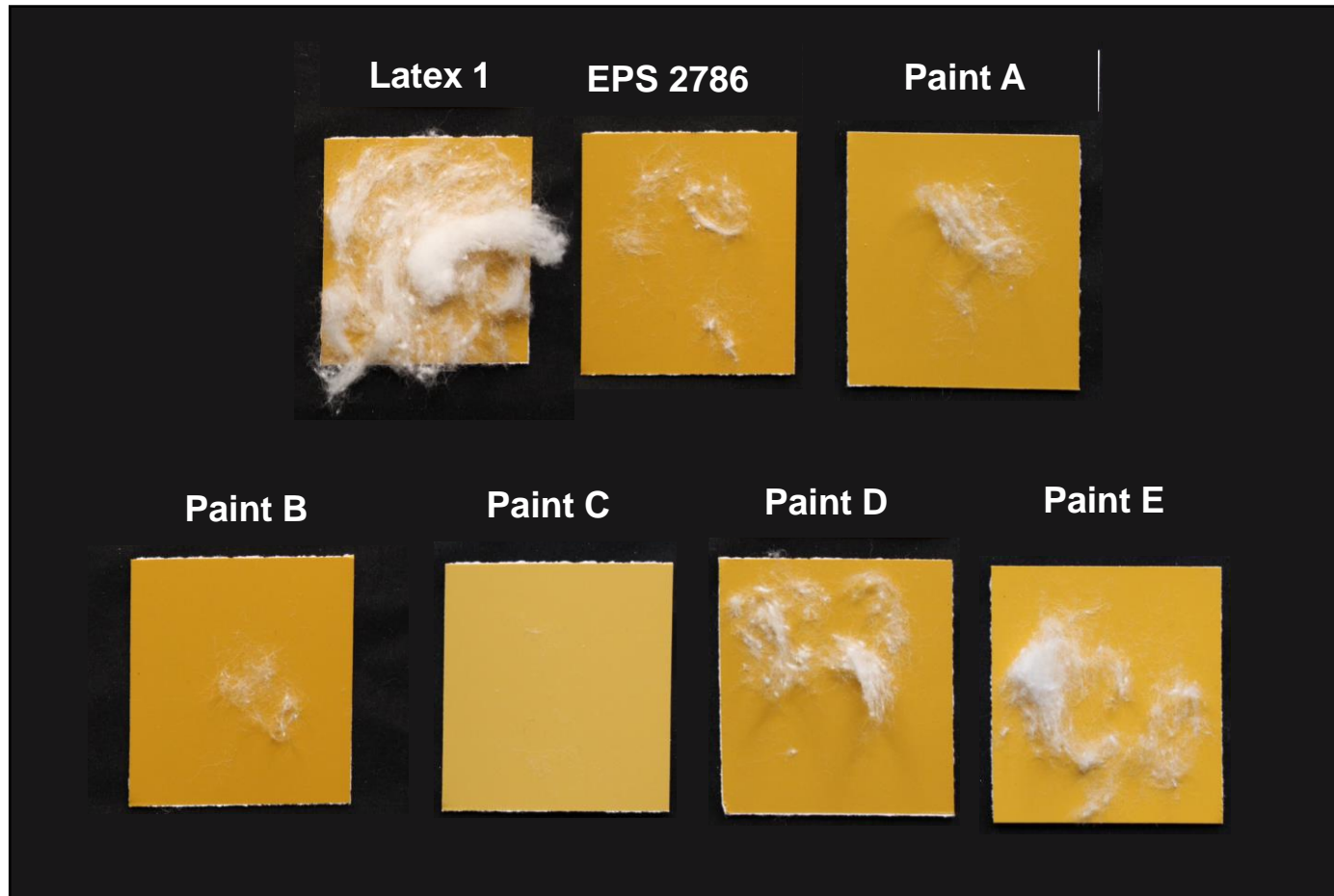


Cotton Ball Tack Test

- 24h Dry at 70F/50rh
- 500g weight
- 1h at 140F
- Cotton removal after cool

EPS 2786 – Cotton Ball Tack Test

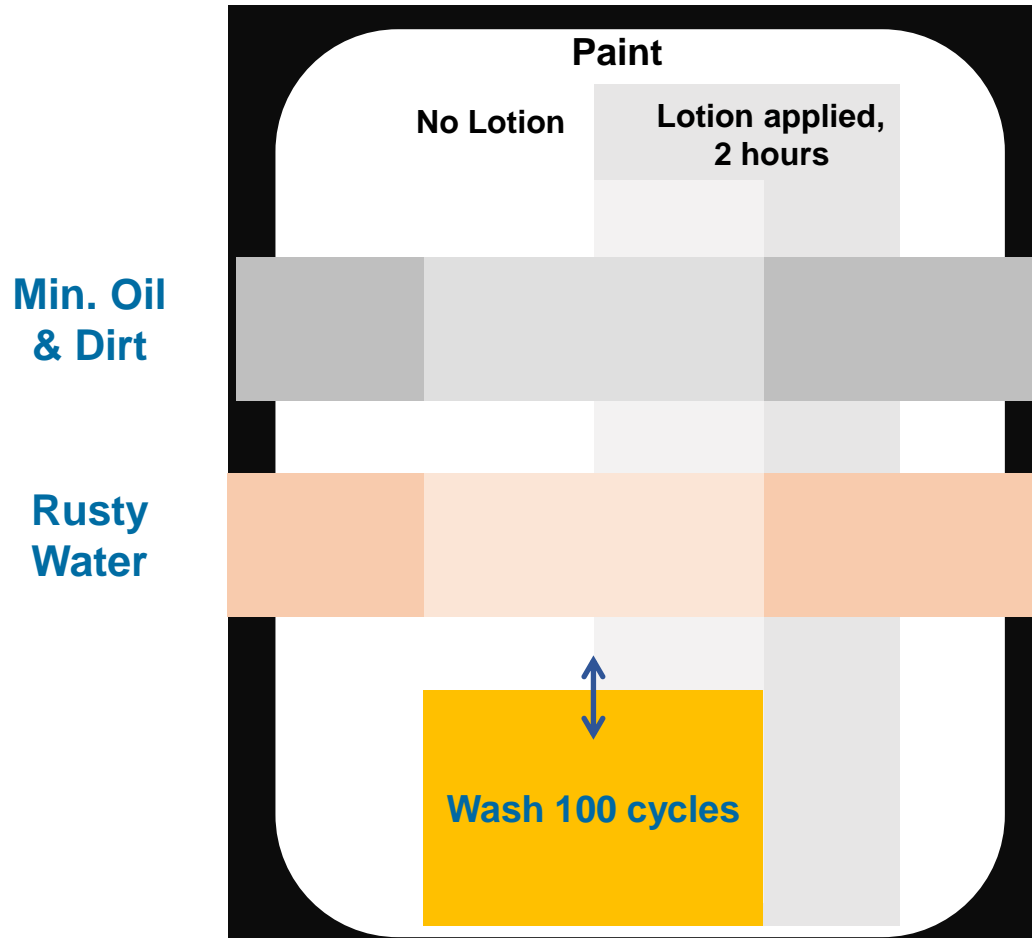
<50 g/L VOC SG Clear Base, 12oz YOX



Cotton Ball Tack Test

- 24h Dry at 70F/50rh
- 500g weight
- 1h at 140F
- Cotton removal after cool

EPS 2786 – High Traffic Applications



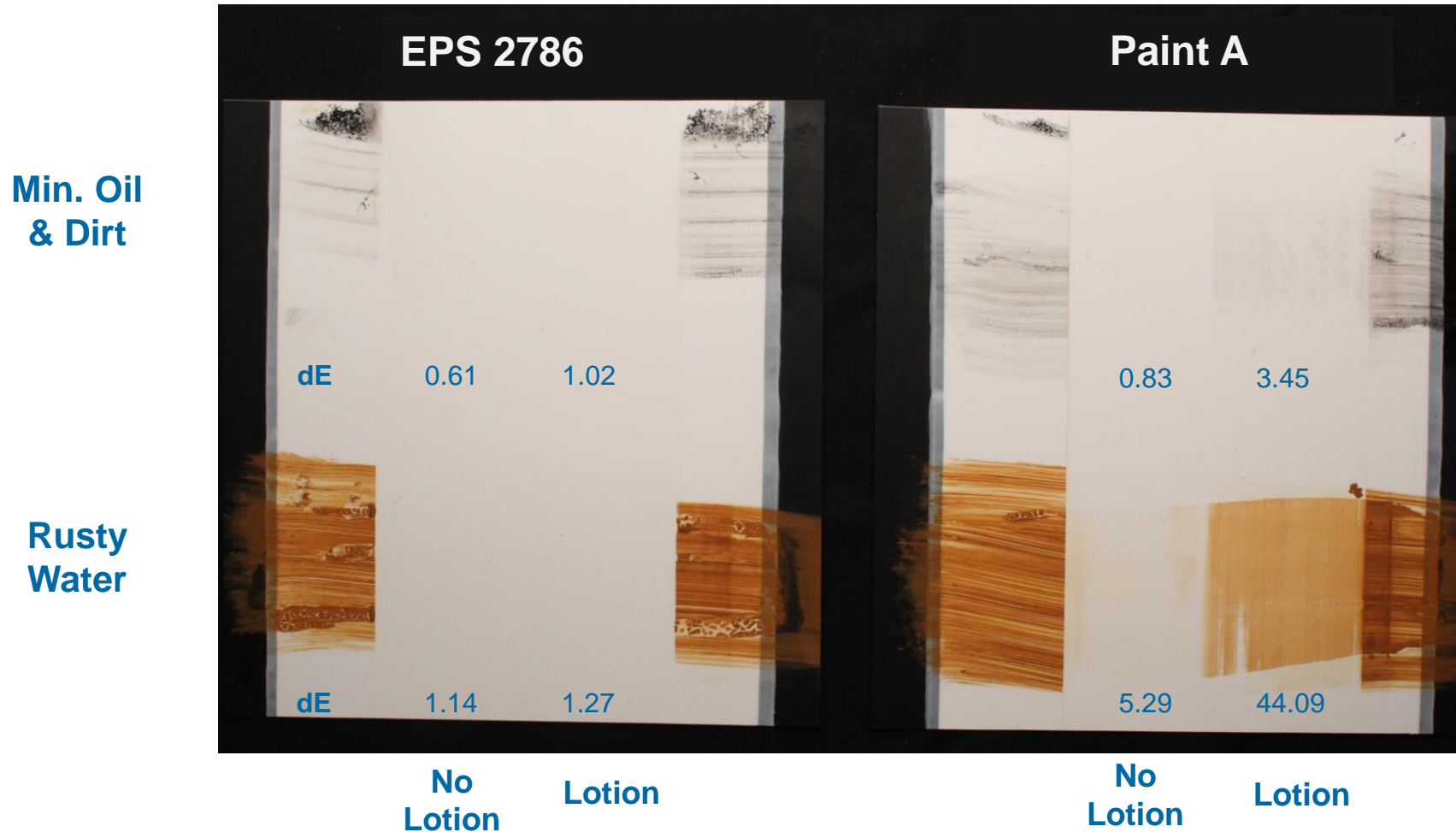
“Light Switch Test”

Simulates high traffic/high contact areas. Panels are exposed to hand lotion then stained. Coatings that have better chemical resistance resist softening and staining

Procedure

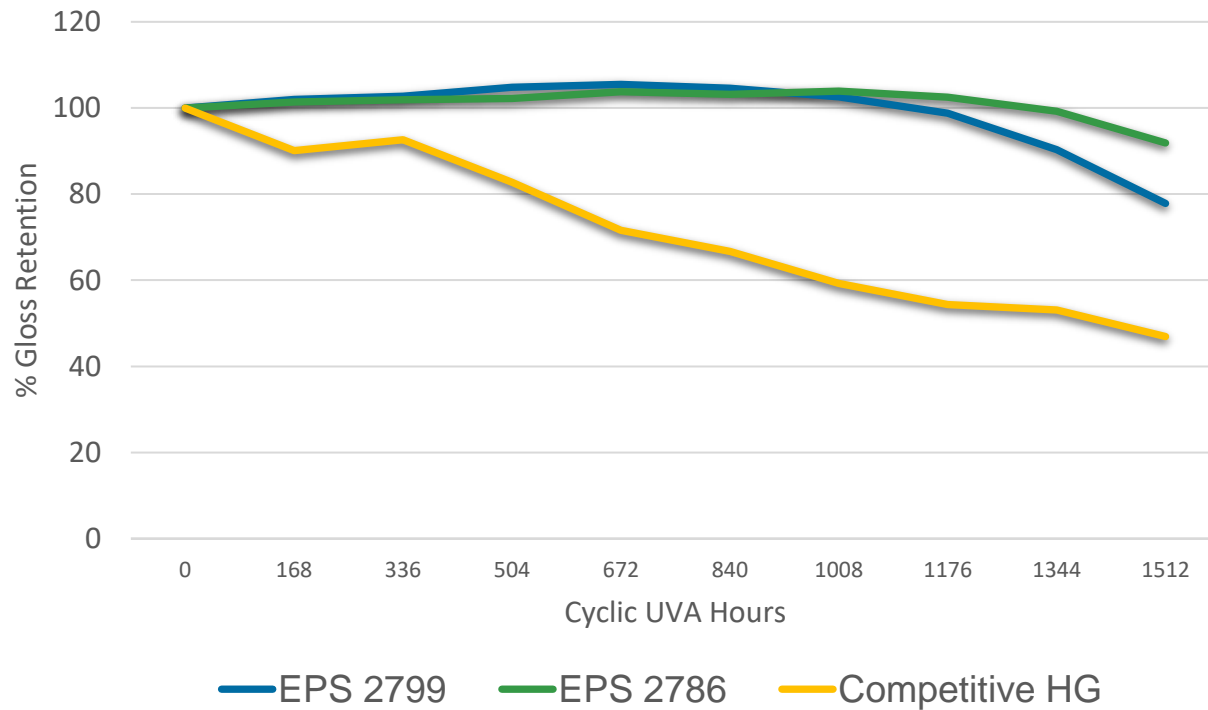
- Lotion applied to half of panel. 2h exposure
- Lotion is removed, then stains are applied, 2 hr exposure. Apply stains, allow to dry 2 hours then wipe with paper towel.
 - Mineral oil & “carpet dirt”
 - Rusty water solution
- Wash for 100 cycles using a sponge w/ non-abrasive scrub medium.
- Measure changes in gloss and ΔE stains.

EPS 2786 – High Traffic Applications



EPS 2786 – Exterior Durability

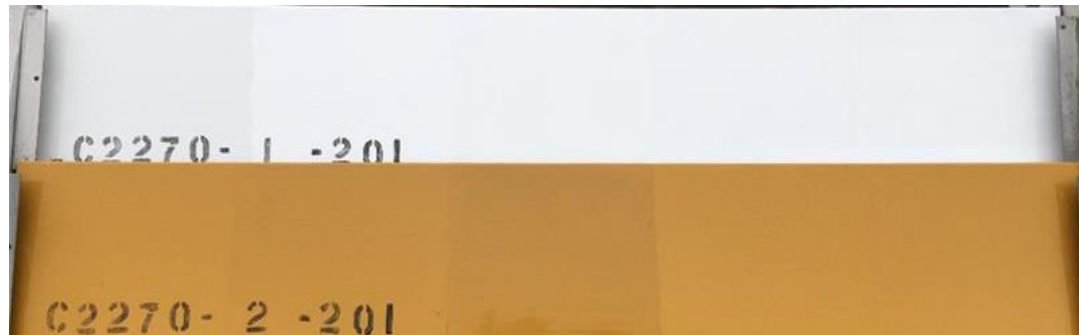
Accelerated Gloss Retention: High Gloss



EPS 2786 – Exterior Durability

High Gloss: 12 Months in Los Angeles

Commercial High Gloss



Initial



12m

<50 g/L VOC

<150 g/L VOC

EPS DPUR Technology

EPS 2799 EPS 2786



<5 g/L VOC

EPS 2786 – Performance Properties

Semi Gloss Pastel Base

Test	Unit	Target	Value	Result
Cleansability - Coffee	dE	< 2.0	1.49	Pass
Cleansability - Nigrosin	dE	< 1.0	0.36	Pass
Cleansability - Graphite	dE	< 1.5	1.26	Pass
Abrasion Resistance (shimmed)	Cycles	>1000	> 2000	Pass
Scrubbability (60° Gloss change)	%	< 20 %	1.01	Pass
Alkali Resistance	Visual	Defect Free	Clean	Pass
10% Hydrochloric Acid	Visual	Defect Free	5	Pass
5% Phosphoric Acid	Visual	Defect Free	5	Pass
25% Sodium Hydroxide	Visual	Defect Free	5	Pass
Mineral Spirits	Visual	Defect Free	5	Pass
Methyl Alcohol	Visual	Defect Free	4	Pass
Motor Oil	Visual	Defect Free	5	Pass
Vegetable Oil	Visual	Defect Free	5	Pass



EPS 2786 – Performance Summary

Next-gen product offered with no intentionally added PFAS

EPS 2786: High Gloss Interior/Exterior Topcoat

- Same day block resistance
- Satin through High Gloss
- High abrasion and chemical resistance
- Extended gloss retention and DPUR
- Resistance to highly alkaline substrates
- Near zero VOC capable

Markets Served:

- Architectural Interior & Exterior wall
- Cabinetry/Furniture Refinish
- Commercial and Institutional Coatings



QUESTIONS?

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