SHERWIN WILLIAMS®

AESTHETIC TOPCOAT INFORMATIONAL GUIDE

FROM SPEC TO PROTECT

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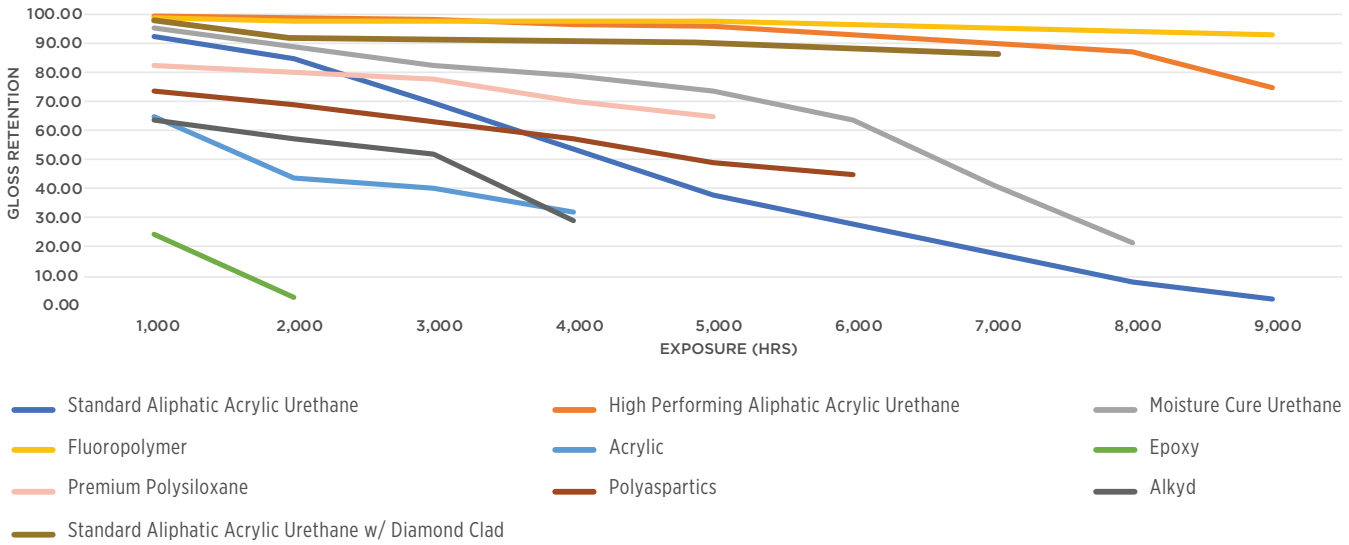
PERFORMANCE BY TECHNOLOGY

GENERAL PERFORMANCE CHARACTERISTICS BY TECHNOLOGY						
	Gloss & Color Resistance	Hardness (Refer to Figure 4)	Flexibility	Temperature Resistance	Applied Direct to Metal	Corrosion Resistance
Acrylic	Good	H-2B	Fair	500°F +	No	No
Alkyd	Fair	3B	Fair	200°F	Yes	Yes
Epoxy	Poor	6H-6B	Poor/Fair	300°F +	Yes	Yes
Epoxy Polysiloxane	Very Good	2H-6B	Good	275°F	Yes	Yes
Fluoropolymer	Excellent	2H-6B	Very Good	300°F	No	Yes
Polyaspartic	Good	6H-6B	Fair/Poor	200°F	Yes	Yes
Polyurethane	Good	4H-6B	Good	250°F	No	Yes

FIGURE 4 - ASTM D3363 PENCIL HARDNESS SCALE													
6B	5B	4B	3B	2B	B	HB	F	H	2H	3H	4H	5H	6H
Soft						**Medium**						**Hard**	

ACCELERATED WEATHERING BY TECHNOLOGY

QUV EXPOSURE BY TECHNOLOGY



Additional questions on specific product performance within a technology should be directed to the product marketing team.

POLYASPARTIC

Polyaspartic coatings are aliphatic polyureas, although application and performance characteristics are closer aligned to two-component aliphatic urethanes. These two-component coatings are created by a reaction of an aliphatic poly-isocyanate with an aliphatic diamine (polyaspartic ester).

ADVANTAGES

- Barrier/direct to metal (DTM) properties - profile needed
- Fast cure with working pot life
- Early moisture resistance
- High-film build (up to 9 DFT)

LIMITATIONS

- Low acid/chemical resistance
- Short recoat window
- Flexibility
- High surface tension
- Substrate must have profile or newly applied epoxy primer for chemical adhesion
- Cannot be applied directly to concrete

TYPICAL SYSTEMS

Can be used as an atmospheric topcoat in a two- (zinc-rich primer/polyurethane) or three-coat system (zinc-rich primer/epoxy base coat/polyurethane) or even as a DTM coating

Primers (if needed): Corothane® I GalvaPac 1K, Zinc Clad® 4100, Zinc Clad® II Plus

Most often applied direct to metal (profile needed) with no system required

MARKET SEGMENTS

- **Oil & Gas**
- **Infrastructure**
- **High Performance Flooring**
- **Food & Beverage**
- **Rail**
- **Bridge & Highway**

POLYASPARTIC PRODUCT PERFORMANCE

PRODUCT	SPECIFIC TECHNOLOGY	FUNCTION
Envirolastic® 950*	Polyaspartic urethane	Direct to metal, topcoat
Envirolastic® 940 LV	Polyaspartic urethane	Direct to metal
Envirolastic® 840 DTM	Polyaspartic urethane	Direct to metal

**Launch planned for 2022*

POLYURETHANES

Aliphatic acrylic polyurethane coatings are based on the reaction of an aliphatic, poly-isocyanate monomer with a polyol. Enhancements made to the resin, such as a polyester, can change the performance characteristics of the coating. Moisture-cured urethanes (MCUs) are specifically based on the reaction of an aromatic or aliphatic isocyanate and cures through a reaction with water.

ADVANTAGES

- High performance acrylic system
- Ideal for areas where rust-inhibitive, corrosion-resistant primer is essential
- Fast dry, low-temperature application
- Fast dry acrylic coating
- Excellent color and gloss retention

LIMITATIONS

- Highly susceptible to moisture during cure
- ISO component for cure
- Cannot be applied directly to concrete or steel in most cases
- Outgassing/foaming when over-applied causing down glossing (MCUs)

TYPICAL SYSTEMS

Typically used as an atmospheric topcoat in a three-coat system (zinc-rich primer, epoxy base coat, polyurethane). Exterior use on metals, bridges, highways, etc. Interior use for chemical clean rooms or sanitary disinfection areas. MCUs are used in cold and/or high moisture conditions.

Primers: Zinc Clad II Plus, recoatable epoxy primer, Zinc Clad 4100, Macropoxy® 646

Intermediate (if needed): Macropoxy 646

MARKET SEGMENTS

- **Oil & Gas**
- **Water & Wastewater**
- **Infrastructure**
- **High Performance Flooring**
- **Food & Beverage**
- **Rail**
- **Bridge & Highway**

POLYURETHANES PRODUCT PORTFOLIO

Product	Specific Technology	Function	Benefit	Flexibility	Impact Resistance	Gloss Retention	Color Retention	Adhesion	Chemical Resistance	Cure Rate
**Acrolon™ 218	Polyester modified, aliphatic acrylic	All Topcoat **Intermediate if used under a fluoropolymer	Good overall properties with good spray application; economical	●	◆	◆	◆	◆	▲	✦
Corothane® II	Aliphatic acrylic			◆	●	◆	◆	▲	●	▲
Acrolon™ 7300	Acrylic		Fair overall properties; economical	●	◆	●	●	▲	●	✦
SherThane® 2K	Aliphatic acrylic			●	◆	◆	◆	✦	●	✦
**Hi-Solids Polyurethane/ **Hi-Solids Polyurethane 250	Aliphatic acrylic		Good overall properties with good brush and roll application	●	◆	▲	▲	✦	●	▲
Polylon™ HP	Polyester modified, aliphatic		Chemical resistant and abrasion resistant	●	●	◆	◆	●	✦	✦
Corothane® I Aliphatic	Moisture cure		MCU; low temp application: 20°F	●	●	●	●	◆	●	✦
Corothane® I HS Aliphatic	Moisture cure		MCU; high solids/more coverage, low temp application: 20°F	●	●	●	●	●	●	▲
**Acrolon™ Ultra	Acrylic		Best brush and roll application with very good color/gloss resistance	●	✦	✦	✦	▲	●	✦
Pro Industrial™ WB Acrolon 100	Waterbased acrylic		Good color and gloss resistance	●	▲	✦	✦	●	▲	✦

◆ **Fair**
● **Good**
▲ **Better**
✦ **Best**

POLYSILOXANE

Polysiloxane products are created by combining an organic resin (epoxy or acrylate) with a methoxyl functional silicone resin and an amino silane. These coatings have single-component (air drying and moisture curing) or two-component (catalyzed) formulas.

ADVANTAGES

- Iso free
- High UV / weathering resistance
- High surface tension for good aesthetics and cleanability
- Two-coat system
- Chemical resistance
- Long application season with low temperature cure hardener (20°F)

LIMITATIONS

- Embrittlement at high DFTs
- Due to the condensation reaction during cure, solvent is released and the coating shrinks, which can facilitate adhesion loss depending on previous coating and/or surface prep
- Recommend an X-cut adhesion test to make sure coating is overcoatable

TYPICAL SYSTEMS

Can be used as an atmospheric topcoat in a two- (zinc-rich primer/polyurethane) or three-coat (zinc-rich primer/epoxy base coat/polyurethane) system or even as a DTM coating.

Primer (if needed): Corothane® I GalvaPac 1K, Macropoxy® 646

Most often applied direct to metal with no system required.

MARKET SEGMENTS

- **Oil & Gas**
- **Water & Wastewater**
- **Infrastructure**
- **Food & Beverage**
- **Marine**
- **Bridge & Highway**

POLYSILOXANE PRODUCT PERFORMANCE

PRODUCT	SPECIFIC TECHNOLOGY	FUNCTION
Sher-Loxane® 800	Epoxy siloxane	Direct to metal, intermediate (under fluoropolymer), topcoat
Polysiloxane XLE-80	Epoxy siloxane	Direct to metal, topcoat
Polysiloxane XLE-80 HF	Epoxy siloxane	Direct to metal, topcoat

FLUOROPOLYMER

Fluoroethylene vinyl ether (FEVE) polyurethane topcoats are created using fluoro-copolymers and are catalyzed with an aliphatic isocyanate. The alternating structure of the fluorethylene vinyl ether resins allows for maximal ultraviolet resistance and very high gloss while still providing the flexibility, hardness and abrasion resistance comparable to two-component aliphatic urethane coatings. These coatings are two-component catalyzed.

ADVANTAGES

- Exceptional UV / weather resistance
- Chemical resistance
- Graffiti resistance

LIMITATIONS

- High cost
- Difficult to overcoat
- Must be used over a polyurethane (not direct to an epoxy) to mitigate risk for chalking and delamination

TYPICAL SYSTEMS

Can be used as an atmospheric topcoat where long-lasting color and gloss retention are critical.

Primers: Dura-Plate® 235, Corothane® I GalvaPac

Intermediate (required): Acrolon® 218, Hi-Solids Polyurethane 250, Sher-Loxane® 800

MARKET SEGMENTS

- **Bridge & Highway**
- **Water & Wastewater**
- **Infrastructure**

FLUOROPOLYMER PRODUCT PERFORMANCE

PRODUCT	SPECIFIC TECHNOLOGY	FUNCTION
Fluorokem® HS 100	Fluoropolymer urethane	Topcoat

AESTHETIC TOPCOAT INFORMATIONAL GUIDE

THE SHERWIN-WILLIAMS DIFFERENCE

Sherwin-Williams Protective & Marine delivers world-class industry subject matter expertise, unparalleled technical and specification service, and unmatched regional commercial team support to our customers around the globe. Our broad portfolio of high-performance coatings and systems that excel at combating corrosion helps customers achieve smarter, time-tested asset protection. We serve a wide array of markets across our rapidly growing international distribution footprint, including Oil & Gas, Water & Wastewater, Bridge & Highway, Steel Fabrication, Flooring, Food & Beverage, Fire Protection, Marine, Rail and Power.

Unparalleled distribution network

Global industry expertise

Most extensive sales organization coverage

Unmatched technical and specification service

North America
sherwin-williams.com/protective
swprotective@sherwin.com

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