

ArmorHue™

TECHNICAL DATA SHEET (TDS)

Product Series: High-Performance TPU Paint Protection Film (PPF)

Description: ArmorHue™ TPU Paint Protection Film is an optical-grade, aliphatic polyurethane-based protective shield engineered for maximum impact protection and long-term chemical durability. Featuring a dense elastomeric top-coat cross-linked to an elite TPU base, this film offers exceptional hydrophobic performance, severe yellowing resistance, and advanced scratch self-healing attributes required by professional vehicle protection programs.

1. Product Structure / Layer Breakdown

The film architecture features four primary operational layers:

- **PET Protective Cap Film:** Matte/clear protective film to protect the self-healing layer during transport (discarded prior to installation).
- **Self-Healing Top Coat:** Dense 0.5 mil elastomeric polymer layer featuring instant memory realignment.
- **Core Base Film:** 6.0 mil Aliphatic Polycaprolactone TPU core providing impact absorption.
- **PSA Glue System:** 1.0 mil Ashland premium pressure-sensitive acrylic adhesive copolymer.

2. Physical & Mechanical Properties

Property / Parameter	Value / Specification Data
Total Film Thickness (Excluding Liners)	7.5 mil (190 microns) ± 3%
Surface Gloss Level	> 95 GU (Gloss Units at a 60° reflection angle)
Base Material Classification	Optical-Grade Aliphatic TPU Resin (Maximum UV Stability)
Adhesive Technology	Ashland Pressure-Sensitive Acrylic (Formulated for wet apply)
Tensile Strength at Break	≥ 35 MPa (Test Method: ASTM D638)
Elongation Rate at Break	≥ 380% (Exceptional elasticity for deep edge tucking)
Puncture Resistance / Strength	≥ 420 N (High resistance against track debris and deep gravel)
Hydrophobic Contact Angle	≥ 106° (Lotus-effect surface for extreme water sheeting)
Self-Healing Activation Temperature	Ambient room temperature (20 mins) or Instantaneous at ≥ 40°C (104°F)

3. Application & Installation Guidelines

Installation Step	Professional Protocol Requirement
Recommended Format	A4 Sample 5M Test Roll 1.52m x 15M Full Installer Box Roll
Installation Method	Strictly Wet Application only. Requires controlled slip and tack solutions.
Handling Requirements	Use a balanced slip solution (distilled water + baby shampoo) to ensure fluid squeegeeing. Meticulous panel claying and decontamination mandatory.
Edge & Corner Finishing	Utilize heat-assisted finishing (heat gun or specialized isopropyl tack solution) to accelerate edge curing and prevent edge lift resistance.

4. Storage & Commercial Warranty

Storage: Keep rolls packaged horizontally inside shipping crates using original core suspensions. Store at +18°C to +24°C (+64°F to +75°F) with 40-60% relative humidity. Avoid vertical stack-weight distortion.

Warranty Policy: ArmorHue™ provides a 7-year comprehensive commercial warranty against optical hazing, blistering, cracking, structural delamination, and oxidative yellowing. Warranty execution strictly requires complete order invoices, intact roll batch labels, and full-resolution installation/defect macro capture.

Disclaimer: This Technical Data Sheet (TDS) serves as an official technical document for installer review. Values listed represent factory batch testing baselines. Performance values can vary depending on specialized local installation techniques and severe environment variables.