



FORMULA SOLUTION



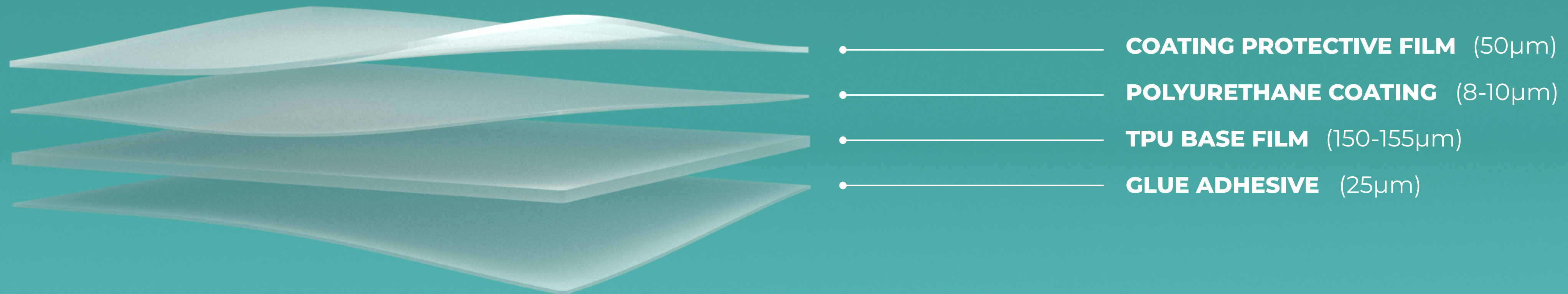
FILM SPECIFICATIONS

CLEAR PAINT PROTECTION FILM

FSG041412 | FSS191225141 | FSH230924 | WINDSCREEN PROTECTION

Advanced thermoplastic polyurethane (TPU) film engineered for optical clarity, impact resistance, and long-term surface protection. Designed to preserve original finishes while delivering self-healing performance and environmental resistance.

PRODUCT CONSTRUCTION



High optical clarity

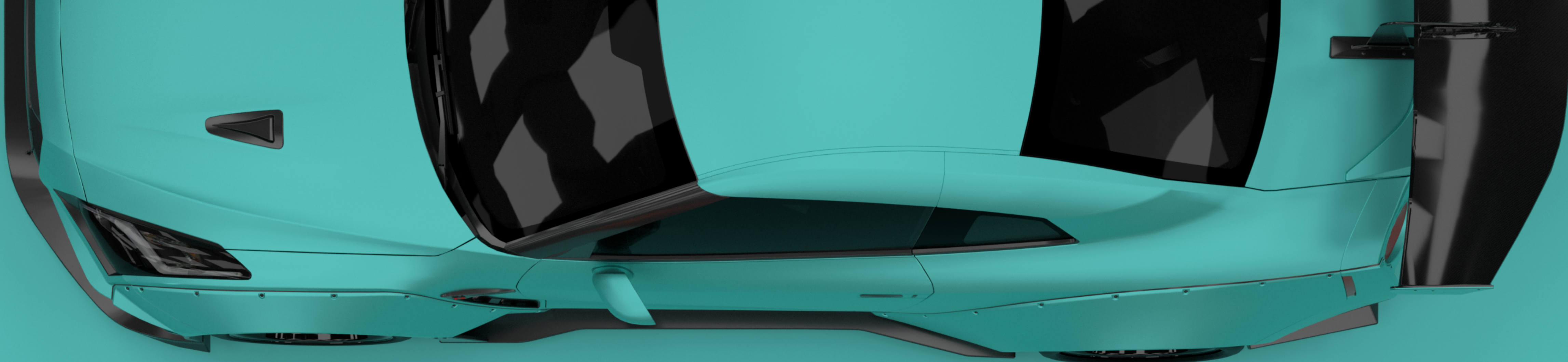
Heat-activated self-healing

Hydrophobic surface

Chemical & stain resistant

UV & environmental durability

High stretch for complex installs



GENERAL CHARACTERISTICS

PROPERTY	TYPICAL VALUES	TESTING CONDITIONS	METHOD / STANDARD
TOTAL THICKNESS	185 ±10 µm	Measured via thickness gauge	Internal
TPU THICKNESS	150–155 µm	–	Internal
ADHESIVE THICKNESS	25 µm	–	Internal
TOP COAT THICKNESS	8–10 µm	–	Internal

OPTICAL PERFORMANCE

PROPERTY	TYPICAL VALUES	TESTING CONDITIONS	METHOD
GLOSS (GLOSS FILM)	95–102 GU	20° / 60° / 85°	Gloss Meter
GLOSS (SATIN FILM)	2–15 GU	20° / 60° / 85°	Gloss Meter
VISIBLE LIGHT TRANSMISSION	84–89%	Visible light transmittance	LS162A

MECHANICAL PROPERTIES

PROPERTY	TYPICAL VALUES	TESTING CONDITIONS	METHOD
TENSILE STRENGTH	31–39 MPa	Peel Force Tester	Internal
ELONGATION AT BREAK	360–400%	–	Internal
PEEL STRENGTH (20 MIN)	1200–1300 gf	Black lacquer panel	Peel Test
PEEL STRENGTH (24 HRS)	1600–1700 gf	Black lacquer panel	Peel Test

CHEMICAL & ENVIRONMENTAL RESISTANCE

PROPERTY	RESULT	TESTING CONDITIONS	METHOD
CHEMICAL RESISTANCE	No detrimental effect	Cleaning agents (30 sec)	Visual
FUEL RESISTANCE	No detrimental effect	Petrol / Diesel (24 hrs)	Visual
ACID RESISTANCE	No detrimental effect	24 hr exposure	Visual
SOAP & WATER RESISTANCE	No detrimental effect	24 hr exposure	Visual

SURFACE PERFORMANCE

PROPERTY	VALUES	TESTING CONDITIONS	METHOD
WATER CONTACT ANGLE	~101°	Hydrophobic testing	Contact Angle Tester
RAIN SPOT RESISTANCE	Pass	1 month outdoor exposure	Visual
INK / STAIN RESISTANCE	Pass	Oil-based pen + alcohol wipe	Double Jay Pen Test

SELF-HEALING PERFORMANCE

PROPERTY	RESULT	TESTING CONDITIONS	METHOD
SCRATCH RECOVERY	Self-healing with heat	Wire brush + heat activation	Visual

AGING PERFORMANCE

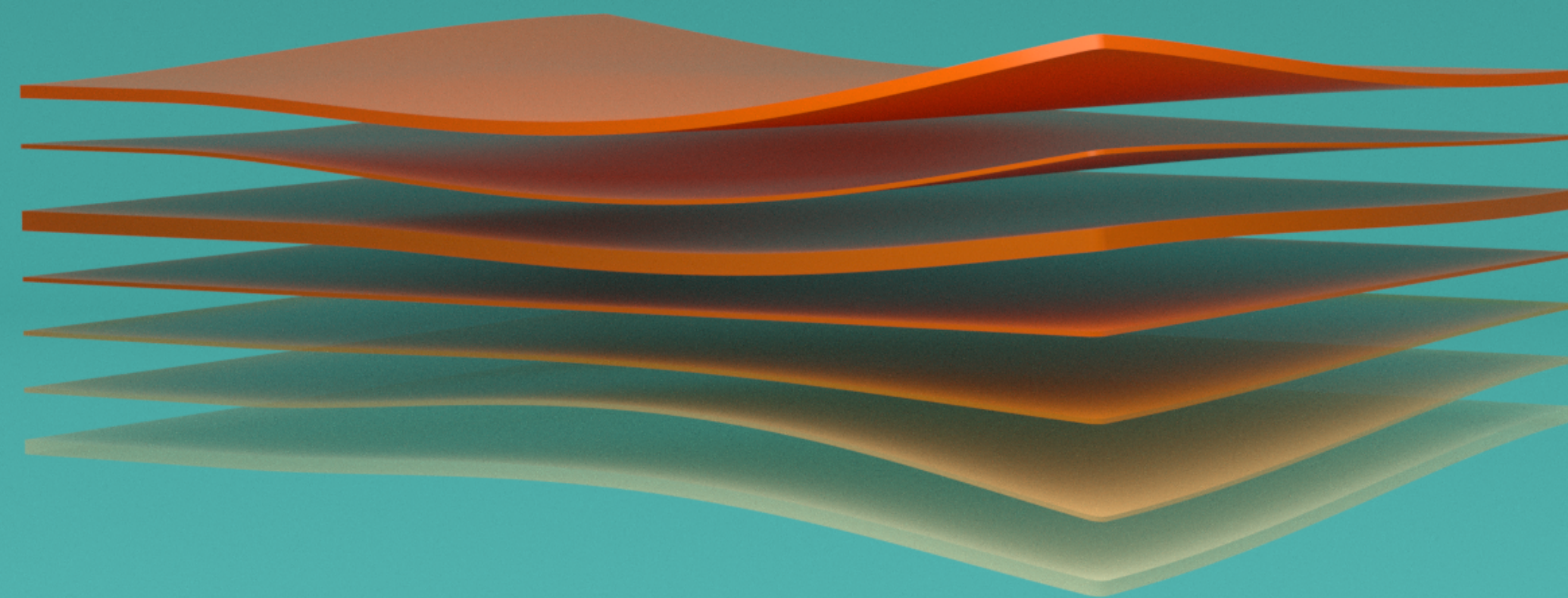
PROPERTY	RESULT	TESTING CONDITIONS	METHOD
WEATHERING RESISTANCE	Pass	Outdoor exposure	Visual

COLOURED PAINT PROTECTION FILM

COLOUR + PROTECTION IN ONE SYSTEM

Multi-layer TPU-based colour protection film combining dynamic colour finishes with advanced paint protection performance. Engineered for durability, colour stability, and self-healing surface recovery.

PRODUCT CONSTRUCTION



- **PROTECTIVE FILM** (50 μ m)
- **COATING LAYER** (7 μ m)
- **TPU BASE FILM** (115 μ m)
- **COLORED POLYURETHANE COATING** (20 μ m)
- **POLYURETHANE SUBSTRATE** (20 μ m)
- **PRESSURE-SENSITIVE ADHESIVE** (28 μ m)
- **LINER** (75 μ m)

Integrated colour + protection

Self-healing surface

High gloss & colour depth

UV & yellowing resistant

Hydrophobic surface

Long-term durability (8 years)

GENERAL CHARACTERISTICS

PROPERTY	TYPICAL VALUES	TESTING CONDITIONS	METHOD / STANDARD
TOTAL THICKNESS	140–190 µm	Includes TPU & coating layers	Internal
ADHESIVE WEIGHT	25–30 g/m ²	-	GB/T 4669
TPU + COATING THICKNESS	140–190 µm	-	GB/T 7125

OPTICAL PERFORMANCE

PROPERTY	TYPICAL VALUES	TESTING CONDITIONS	METHOD
GLOSS (60°)	≥90 GU	Standard gloss testing	GB 8807
COLOUR STABILITY (ΔE)	≤2	UV exposure (QUV)	QUV Method

MECHANICAL PROPERTIES

PROPERTY	TYPICAL VALUES	TESTING CONDITIONS	METHOD
ELONGATION AT BREAK	≥60%	HC layer tensile test	GB/T 1040.1
DIMENSIONAL STABILITY (MD)	≤0.5 mm	Shrinkage test	FTM 14
DIMENSIONAL STABILITY (CD)	≤0.4 mm	Shrinkage test	FTM 14

ADHESION PERFORMANCE

PROPERTY	TYPICAL VALUES	TESTING CONDITIONS	METHOD
INITIAL ADHESION	≥8 N/25mm	Initial application	FTM 9
PEEL STRENGTH (24 HRS)	≥12 N/25mm	Cured adhesion	GB/T 2792
PEEL STRENGTH (AGED)	≥16 N/25mm	Heat-aged adhesion	GB/T 2792

SURFACE PERFORMANCE

PROPERTY	VALUES	TESTING CONDITIONS	METHOD
WATER CONTACT ANGLE	≥103°	Hydrophobic testing	DL/T864
SCRATCH SELF-HEALING	Heat activated	Abrasion + heat	Visual

CHEMICAL & ENVIRONMENTAL RESISTANCE

PROPERTY	RESULT	TESTING CONDITIONS	METHOD
ACID / ALKALI RESISTANCE	No visible defects	24 hr exposure	Direct Test
STAIN RESISTANCE	No visible defects	UV + water exposure	GB/T 16422.2
WATER SPOT RESISTANCE	No visible spotting	Outdoor exposure	Visual

DURABILITY

PROPERTY	VALUE	TESTING CONDITIONS	METHOD
OUTDOOR DURABILITY	Up to 8 years	Standard environmental exposure	Manufacturer Spec

