

NANO POLYMER  
TECHNOLOGY

PURE PROTECTION

OPTICAL  
TECHNOLOGY



# OPTICAL

PAINT PROTECTION FILM

RESEARCH NOTE



# The Visual Craftsmanship

## True Colors Awakened, Immersed in Pure Protection

Prepare to elevate your visual and sensory experiences to a whole new realm with the magic of precision optics!

Introducing ONYXHIELD, the trailblazing pioneer in precision protective film technology. We proudly present 'OPTICAL Paint Protection Film (PPF),' a groundbreaking innovation born from the world of precision optics. Drawing on a marriage of cutting-edge optical engineering and state-of-the-art nanopolymer technology, Rayno's Optical Paint Protection Film takes the vibrant red palette of a Ferrari to new heights, rendering those iconic seven shades in a breathtakingly vivid and stunning fashion.

Enter the world of ONYXHIELD, where protection is just the beginning. Discover **EX9**, a revelation in color brilliance through advanced optical tech, **EX11**, where the spirit of motorsports meets uncompromising protection, and **EX ALPHA**, the ultimate expression of unique vehicle style through a spectrum of colors and patterns.

ONYXHIELD is not just about safeguarding your prized possessions; it's about turning them into visual masterpieces. Join us on this extraordinary journey, and let your vehicle become a canvas of unparalleled craftsmanship and style!

# Optical PPF

Experience the perfect blend of cutting-edge vehicle protection and breathtaking aesthetics with ONYXHIELD.

Beyond safeguarding your vehicle from the harshest driving conditions, we are dedicated to elevating its visual appeal to new heights.

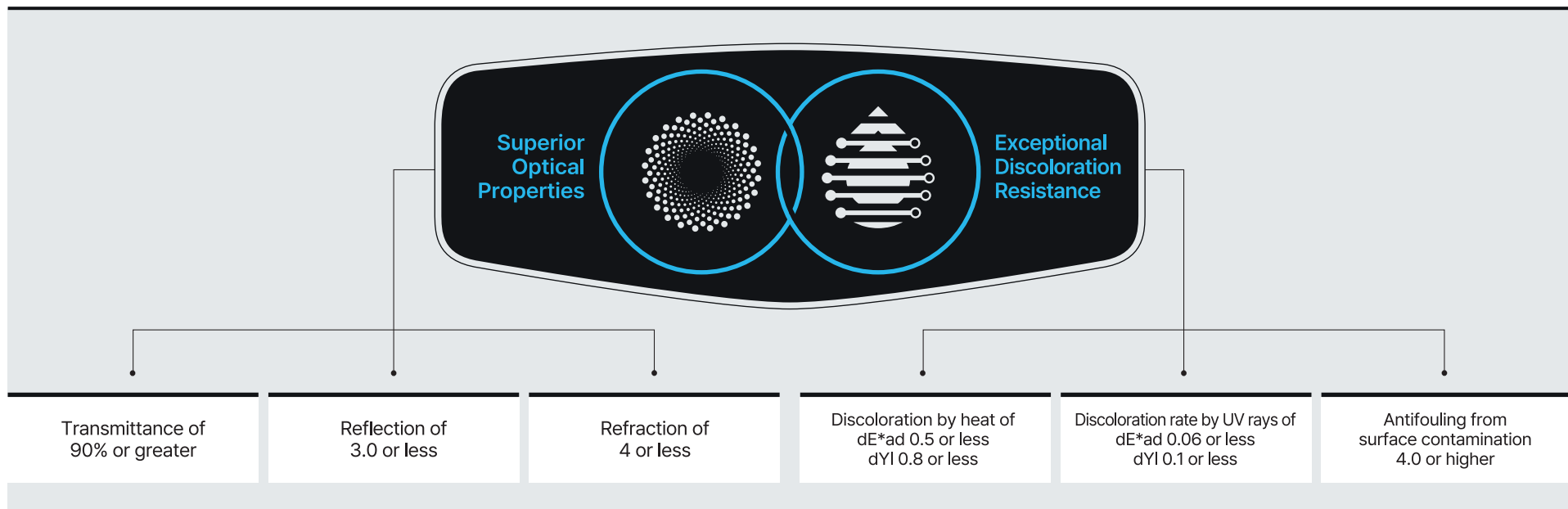
Did you know that over 80% of the information we perceive comes through our sense of sight? Recognizing the paramount importance of vision, ONYXHIELD's R&D Team invested years in intensive research and analysis. We delved deep into the realm of 'optical properties,' which encompass the way light is transmitted, reflected, and refracted, and explored 'discoloration

resistance' against heat, UV rays, and surface contaminants.

The result? A groundbreaking achievement - the world's first Optical Paint Protection Film. This innovation is not just a shield; it's a vision enhancer, meticulously crafted to make your vehicle stand out in both performance and aesthetics. Discover the future of automotive protection and style with ONYXHIELD.



## OPTICAL PPF COMPOSITION



\* Durability Enhancement: Conducted '4-Layer Structure Test' to reduce discoloration rates for longer-lasting performance. \* Visual Clarity Priority: Prioritize higher transmittance for clearer visuals.

\* Reduced Interference: Favor lower reflection and refraction rates for superior clarity and performance. \* Conversion indicator : Reflection(1.0 ~ 5.0) / Refraction(1 ~ 10)



# D1

## OPTIMIZING OPTICAL PROPERTIES

### Transmittance, Reflection, Refraction

EXPERIENCE UNMATCHED CLARITY IN ANY ENVIRONMENT

Our technology minimizes light loss, optimizes transmittance, reflection, and refraction, all to vividly showcase your vehicle's paint color, even in challenging atmospheric conditions like air, raindrops, and dust.

# D2

## DURABLE AGAINST DISCOLORATION

### Heat Discoloration ( $\Delta E$ )

SAY GOODBYE TO HEAT DISCOLORATION WORRIES

Our world class durability comes with a solid 10-year warranty, guarding against orange peel and yellowing. Enjoy peace of mind with our decade-long guarantee.

### Ultraviolet Rays

PRESERVE THE BRILLIANCE

Our paint protection film coating layer, fortified with advanced UV resistance, keeps your film performing at its best over time. Experience long-lasting performance that stands the test of time.

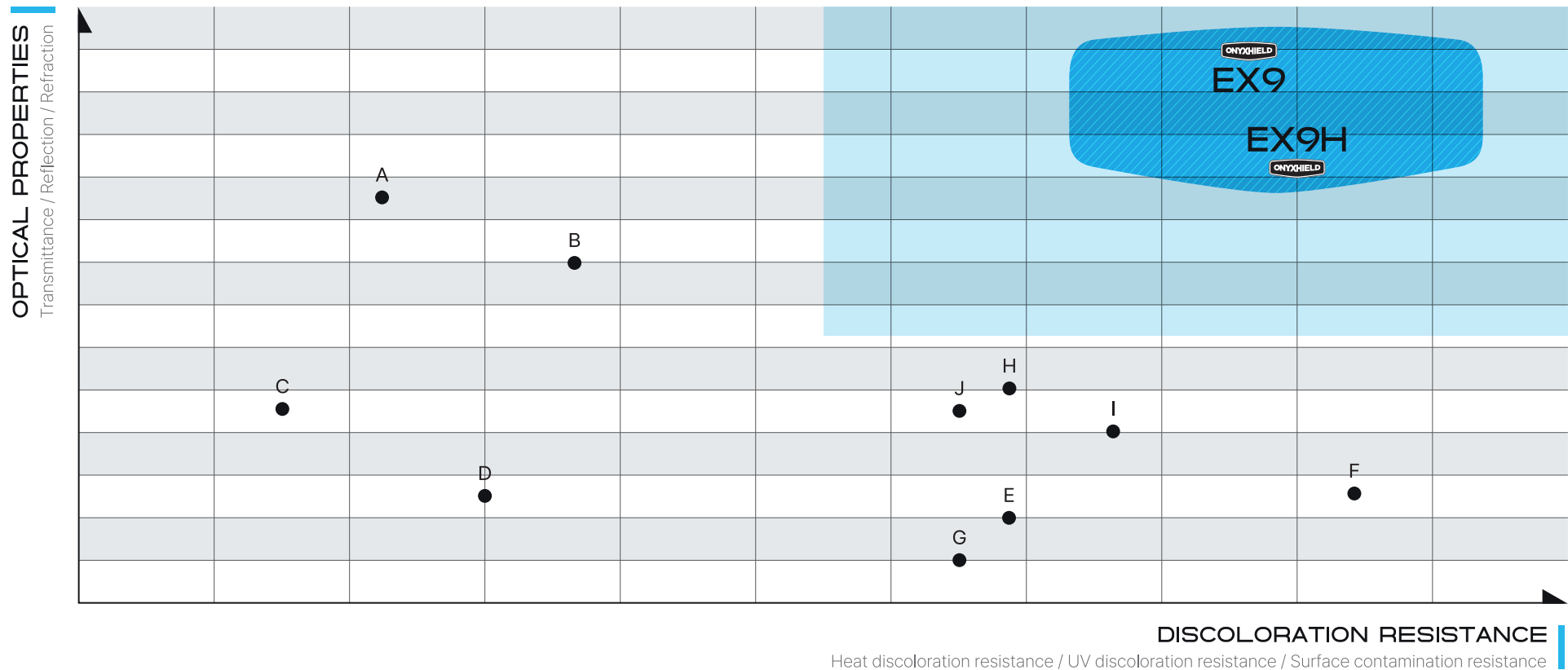
### Film Surface Contamination

UNLEASH YOUR VEHICLE'S SHIELD

Our high-performance formula keeps bird droppings, lime water, and acidic contaminants at bay, safeguarding your car's paintwork. We maximize chemical resistance in the top coating for daily life protection.

# Optical PPF Map

Experience Unmatched Optical Excellence and Discoloration Resistance:  
Onyxshield's Optical Paint Protect Film sets the industry standard for spectacular optical performance and unyielding resistance against fading. Elevate Your Vehicle's Protection to the Next Level!





Products



# EX9

## FEATURES

**Unleash True Vehicle Beauty** Our cutting-edge optical technology enhances your car's natural color to perfection. Harnessing advanced techniques in transmittance and light reflection control, we make your ride shine like never before.



Skillfully controls transmittance, reflection, and refraction to illuminate your vehicle's paintwork in a kaleidoscope of colors



Shields from external shocks and stone chips, keeping it pristine

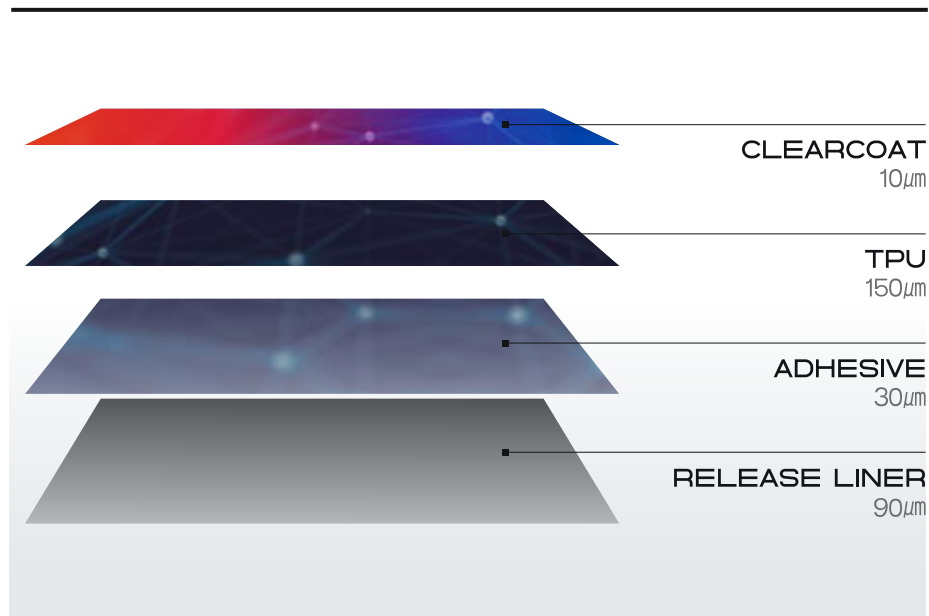


Experience unyielding color protection and maximum film retention through cutting-edge coating technology



Enjoy hassle-free care with self-healing scratch performance

## STRUCTURE



## OPTICAL PROPERTIES

Classification		EX9	EX9H
Light Transmittance		90.85	90.31
Reflection (1.0-5.0)		1.0	1.3
Refraction (1-10)		3	4
Heat Discoloration	dE*ad	0.36	0.43
	dYI	0.62	0.63
UV Discoloration	dE*ad	0.04	0.04
	dYI	0.03	0.05
Antifouling (1-5)		4	4.5

## PRODUCT SPECIFICATION

Classification	EX9	EX9H
Product Thickness	190±17	190±17
Glossiness	>90GU	>90GU
Elongation	195±20	195±20
Water Contact Angle	80°	97°
Self Healing	1hr ↓	1hr ↓
Film Warranty Period	10years	10years



# EX11

## FEATURES

At the heart of our mission lies the essence of motorsports. We deliver uncompromised protection, even as you push the limits on the track, thanks to our robust 250 $\mu\text{m}$ (10mil) film thickness. Experience pure power and safety in every exhilarating moment.



Achieve unparallelled protection and durability with robust TPU fabric, 200  $\mu\text{m}$  thick



Protect your vehicle from corrosion caused by bird droppings, calcium chloride, lime water, and more

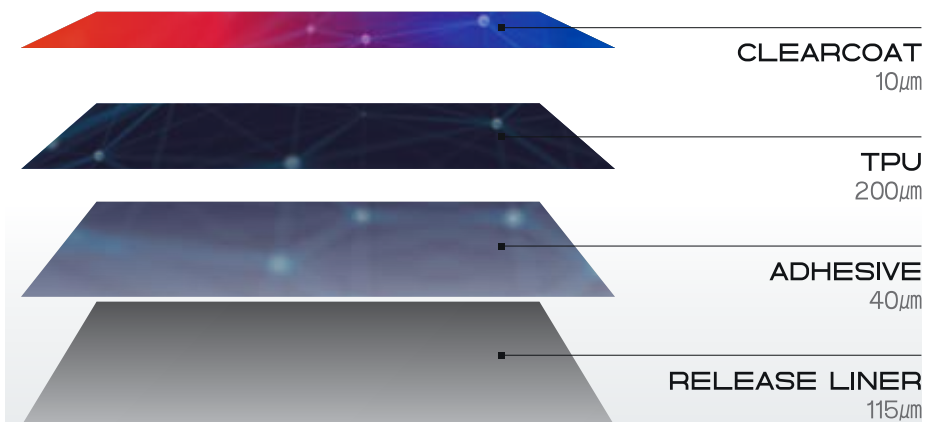


Enhanced color retention and superior film adhesion through advanced coating technology



Premium TPU fabric's strong tension and flexibility offer exceptional workability

## STRUCTURE



## OPTICAL PROPERTIES

Classification		EX11
Light Transmittance		91.02
Heat Discoloration	dE*ad	0.83
	dYI	1.4
Antifouling (1-5)		4.5

## PRODUCT SPECIFICATION

Classification	EX11
Product Thickness	250 $\pm$ 17
Glossiness	>90GU
Elongation	190 $\pm$ 20
Water Contact Angle	97°
Self Healing	1hr $\downarrow$
Film Warranty Period	10years

# EX13

## FEATURES

EX13, a luxurious 300 $\mu$ m (12 mil) thick high-performance film, 1.5 times thicker than standard paint protection film. From heavy-duty trucks and specialized vehicles to various other applications, EX13 offers unmatched exterior safeguarding in rugged off-road journeys and challenging industrial sites, with style and confidence.



With a substantial 300 $\mu$ m thickness, EX13 preserves your vehicle's paint surface from potential harm.



Optimizing optical properties with robust discoloration resistance, the unique performance of EX13 ensures long-lasting durability.

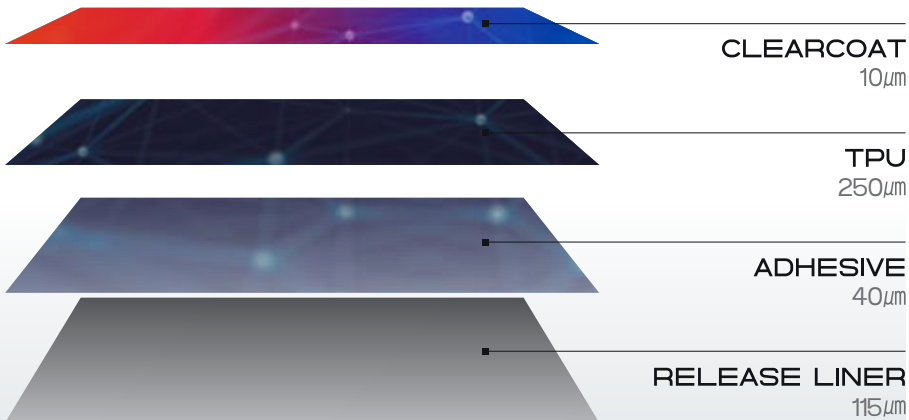


Self-healing performance that easily restores scratches on the film itself simplifies vehicle maintenance.



With excellent flexibility and film elongation, EX13 is fit for a wide range of vehicles of all sizes from heavy duty trucks to recreational vehicles.

## STRUCTURE



## PRODUCT SPECIFICATION

Classification	EX13
Product Thickness	300 $\pm$ 17
Glossiness	>90GU
Elongation	195 $\pm$ 20
Water Contact Angle	97°
Self Healing	1hr $\downarrow$
Film Warranty Period	10years

# EX Alpha

Crafted in partnership with leading global design studios:  
Our Color and Pattern paint protection film delivers unrivaled protection  
and performance while elevating your vehicle's unique style.

NEXT COLOR? PATTERN?

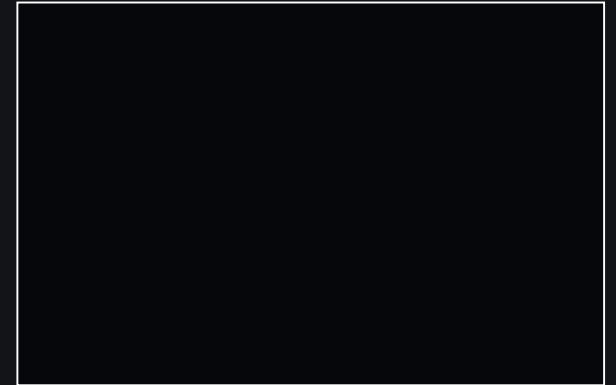




ONYX CARBON



RAZER BLUE



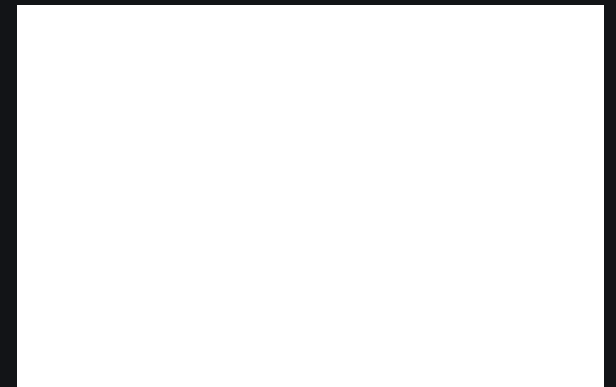
MATTE BLACK



BLIZZARD CARBON



ROSSO CORSA



MATTE



[www.onyxhield.com](http://www.onyxhield.com) | [info@onyxhield.com](mailto:info@onyxhield.com)

