

AUTOZKIN WPF-ULTIMATE Windshield Protection Film Ultimate

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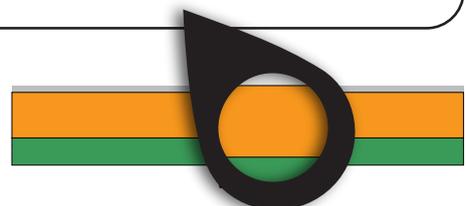
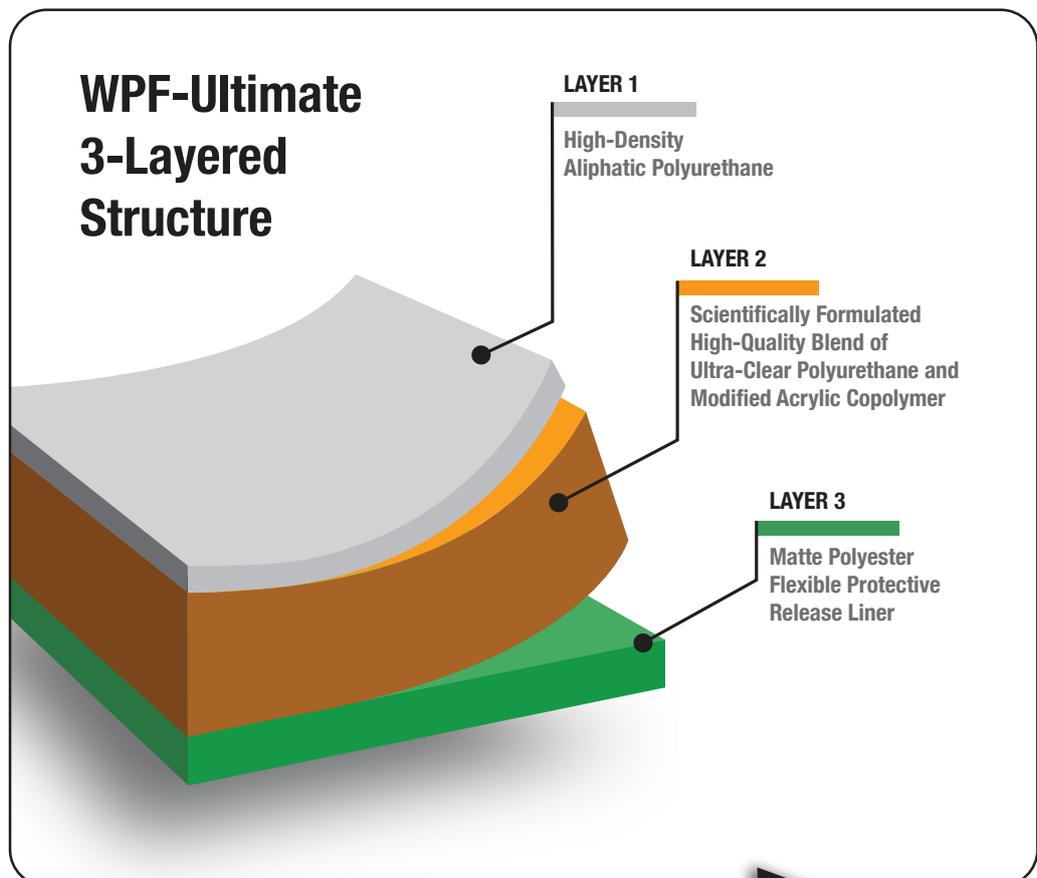
The Sustainable Solution

The Ultra-Tough Strong Performance Transparent Polyurethane Film

General Description

Autozkin WPF-Ultimate is an optically clear, super tough and durable protection film for vehicle windshields. Our film is thermally fitted to the curves of windshields, forming a seamless bond with the glass. Cleverly designed to absorb the impact of road hazards and reduce the effects of stone chips, scratches and everyday abrasive elements, the windshield exterior is superbly wrapped over in its entirety from edge to edge, providing the driver and passengers with the most secured protection from within the vehicle. Upon installation, the film is undetected to the naked eye. With such high visual clarity, the driver can drive anywhere, at anytime, with complete ease of mind. The invisible protective film, being UV stable, also helps reduce the amount of heat permeable into the vehicle. This way, the vehicle's interiors are protected and their lifespan prolonged. Autozkin WPF-Ultimate integrates the latest in nanotechnology, creating an hydrophobic effect between liquid substances and the glass surface. The windshield is always in a clean and pristine condition, regardless of rain or shine. This invisible, yet visibly effective shield, is a 'must have' for any vehicle!

Schematic Representation of Autozkin WPF-Ultimate



Specific Technical Information

Autozkin WPF-Ultimate is composed of 3 distinct layers. Each layer of this multi-layered film is made from the best chemical materials and serves several unique principal functions as described in this section below. Each layer of the film is transparent. This ensures the highest degree of visibility is maintained through the full spread of the windshield. The invisible protective film, seamlessly bonded to the windshield has been proven to strengthen the windshield up to 39%, thus significantly extending the life of the windshield on any stretch of potentially hazardous road. Its strong and toughened nature is able to shield and ward off any harmful and damaging effects of airborne rocks, stone chips and other flying debris, offering the driver and passengers that 'enwrapped' sense of security and safety on the road. Overall, Autozkin WPF-Ultimate is tested and proven by INTERTEK as having possessed these outstanding qualities and capabilities:

- Clear and smooth texture with excellent optical clarity.
- Invisible when applied to the windshield.
- Super tough, strong and durable.
- Scratch-resistant and mar-resistant.
- Anti-shatter characteristics (i.e., can withstand impact equivalent to 100 foot-pounds).
- Provide up to 95% UV protection.
- UV-resistant without yellowing or embrittlement.
- Offer 82% heat reducing qualities.
- Strengthen the windshield up to 39%.
- Chemical-resistant to water, soap, acid, oil, salt spray, and other contaminants.
- In an accident, help to hold cracked fragments together and limit the extent of shattering.

LAYER 1

Micro-thin as it is, this high-density aliphatic polyurethane layer is so tough and durable that it acts as a 'hard coat' braving any airborne external elements that first come in contact with the windshield. Its scratch-resistant and mar-resistant qualities can stand up to the typical abusive impacts of rocks, stone chips and flying debris, as well as daily abrasions from the use of windshield wipers many hundreds to thousands of times over. Aliphatic polyurethanes are highly UV stable and are extremely resistant to yellowing due to persistent and prolonged UV exposure. They also have the capacity to allow rays of light to pass through without scattering, thus permitting the driver excellent optical clarity whilst on the road.

LAYER 2

The thickness of this film layer will vary (approximately 4 to 7 mm), depending on the specific purpose of application and the type of vehicle, as well as the angle at which the particular windshield is inclined. This specially formulated layer is comprised of a high-quality blend of ultra-clear polyurethane and modified acrylic copolymer adhesive substrates. This special blended polymer substrate composite gives a form of rigidity and durability to the film structure that can hold firmly over the windshield without giving way in adverse weather or road conditions, yet is able to retain a high degree of flexibility when stretched and it is made to conform to the shape of any curved contoured glass surfaces. This special blended layer provides a doubled shock-absorbing and impact-dispersion quality that ensures on-coming impact forces from stone chips, rocks and flying debris are effectively diverted and significantly reduced. Its UV stabilising nature also helps to extend the usable lifespan of the film. Made to perfectly adhere to any windshield's curved glass surfaces, the film is made to stand up to the test of time in any adverse conditions and fulfill the ultimate promise of giving maximum protection on the road.

LAYER 3

A thin layer of release liner permits ease of installation, as well as ease of handling, storage and transportation of the film. This layer will be peeled off prior to installation, thus allowing the adhesive surface of the film to contact the vehicle's windshield surface.

Properties of WPF-Ultimate

Characteristics	Scientific Testing Method	Typical Results	
Optical Clarity (Visual)	Per ClearPlex Instruction One half of the glass screen was covered with the protective film. A digital photograph was taken and both areas were compared for visually discernable diminishing of optical clarity.	Good optical clarity. No noticeable optical colour change.	
Reciprocating Wear	Per ClearPlex Instruction Rubbing Cloth: Cotton canvas #8 Load: 5.0 lb 3.0 oz. Cycle Speed: 30 cycles/minute Cycles: Up to 10,000	No wear was detected after 10,000 cycles of exposure.  (Left) Autozkin (Right) Brand X	
Scratch Test (Pencil Hardness)	ASTM D3363-05 Pencil* Hardness Scale: (Softer) 6B-5B-4B-3B-2B-B-HB-F-H-2H-3H-4H-5H-6H (Harder) Gouge Hardness: The hardest pencil that will leave the film uncut for a stroke of at least 1/8 inch. Scratch Hardness: The hardest pencil that will not rupture or scratch the film.	Gouge Hardness: Mean 5H Scratch Hardness: Mean 4H  <i>Autozkin Scratch Test Sample *by Bero! pencil. As reference, a material that could barely be scratched with a typical #2 pencil would equate to a HB pencil hardness rating. Many automotive paints have scratch hardness rating requirements in the 2H or greater range.</i>	
Thumbnail Hardness	Per ClearPlex Instruction Hold the sample in any convenient position and endeavour to mar the surface by scraping, pressing, pulling, or digging the thumbnail into the film.	No Marring. No Film Removal or Appearance Changes.  <i>Autozkin Thumbnail Test Sample</i>	
Staining	Per ClearPlex Instruction Each staining agent was applied to the sample in a single stroke. After allowing to set for 15min, it was gently wiped off with a clean soft white cloth using moderate pressure. Staining agents include Cosmetic Base (approx. 1.06g), Lipstick (red; approx. 0.03g), and Permanent Marker (black; three lines). The final staining observations are reported in the right columns.	Cosmetic Base Lipstick, Red Permanent Marker, Black	No Staining
UV Resistance (Xenon)	ANSI/SAE Z26.1-1996 (Modified) Apparatus Used: Q-Sun Filter Comb: Type S Borosilicate Irradiance: 63W/m ² @ 300-400nm (0.55W/m ² at 340nm) Chamber Air Temperature: 40±3°C Black Panel Temperature: ~72°C Relative Humidity: < 20% RH Light/Spray Cycle: None Exposure Period: Up to 500 hrs	Hours of exposure to visual film yellowing or other optical degradation	None
		Hours to film delamination or other physical change	None
		AATCC Grey Scale Rating	5 (No noticeable colour change)

Above data are typical values, not guaranteed to the product. Published in January 2015.

Typical Industry Sector Applications

Autozkin WPF-Ultimate is suitable for effective protection of windshields for an array of vehicles, including luxury cars, fleet cars, regular autos, off-road vehicles, trucks, buses, aircrafts, yachts and other water-crafts. Our WPF possesses a high surface hardness that makes it highly impact-resistant, suited for exterior surface protection. With excellent optical clarity, our film is suitable for all types of automotive and transportation applications that demand uncompromisable, impeccable and unobstructed visibility on the road, be it day or night, or through all sorts of weather conditions.

Typical Reasons for Application

There is no debate on whether it is necessary to have an added windshield protection when the safety of people is put in the highest priority. Autozkin WPF-Ultimate, the ultra-tough strong performance transparent polyurethane film, as an important addition to a holistic automotive protection system, will offer that strong sense of security and safety on the road. It is a cost-effective counter measure and a sustainable solution to windshield damage, repairs and replacement in the long run.

Warranty Information

Autozkin offers a 1-year Limited Warranty for WPF-Ultimate, the original product purchased from Autozkin, free of discernible manufacturing defects, and used for its intended purposes. This Limited Warranty shall be limited to a period of 1 year from the date of purchase by the original retail purchaser. Autozkin will replace any film that does not meet this warranty. The warranty does not cover damage to the film caused by faulty or incorrect installation done elsewhere, or damages, incidental, consequential or otherwise, such as accidents or collisions, intentional negligence, misuse, abuse, neglect, alteration or vandalism, or routine deterioration or damage such as chips or dents to the protected surface or film caused by impact of particles such as flying objects, loose rocks or any other debris. This warranty is only valid as to the original retail purchaser from Autozkin, and is therefore not transferable or assignable to any other parties, by operation of law or otherwise. Please contact Autozkin for more information regarding the warranty offer.

About Installation

Autozkin WPF-Ultimate can be installed to any clean and undamaged windshield. The installation process can be complex as it requires meticulous film positioning, trimming and a protocol-guided wet application with the use of multiple tools. To avoid imperfections from happening to the installation outcome, Autozkin recommends that only approved skilled installers perform the installation process. Our installers can help you with the installation service at the highest standard.

Disclaimer Notes

Autozkin Co., Ltd has provided this Technical Fact Sheet as a helpful resource to complement its WPF product range. However, it is vital the customer is aware of the specific conditions in which the product is to be used, and it remains the customer's responsibility to determine if the product is suitable for that intended use. It is also important to refer to the most up-to-date industrial data or facts as specifics may change from time to time.

The following links may be a helpful resource for further information about WPF products.

- Autozkin Website: www.autozkin.com/
- Youtube Clips: ClearPlex Windshield Protection Webmercial; ClearPlex Windshield Kit Installation Guide
- Autozkin on Instagram: www.oninstagram.com/autozkin



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