

## Satin Clear 200

PRODUCT INFORMATION BULLETIN

AERO Sustainable Material Technology outperforms traditional spray paint in every aspect. It's lightweight, dynamic, durable and dramatically reduces environmental impact.

There's never been a more critical time for our planet. Yet traditional spray paint is having a detrimental effect on the environment.

AERO offers a radically different story. Our material technology offers an incredibly streamlined, sustainable manufacturing and application process. It requires no primer, no overspray, no clear coat. It emits zero carbon, is virtually VOC free, and contains no PVC. Add to this its various efficiencies in performance and disposal and the reduction in damage to our planet is staggering. As OEMs across the globe face sustainability goals that are impossible to achieve using traditional spray paint, AERO is a true game changer.

### The future of material technology? We have it covered.



#### 01

Satin AERO Clear 200 is an environmentally sustainable, ultra-durable, self-healing clear coat with unique properties that result in a pain-free customer experience.

#### 02

Satin AERO Clear 200 selfhealing clear coat enhances the durability and exterior performance of vehicles.

#### 03

Our chemistry does not rely on inorganic fillers to achieve satin-matte. We microstructure the surface of Satin AERO Clear 200 to defract light, so unlike traditional satin spray coats, our product is not sensitive to detail sprays and waxes.

## Environmental Sustainability

# Zero Carb#n Zero PVC Zero VmCs Zero Solvents

#### 01

We are committed to driving down our environmental impact.

02

Our product uses no sprayers and requires no sanding of harmful paints, primers, or coating materials. 03

It's both environmentally and occupationally benign.

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## Sustainable, Yet Superior Quality & Performance

#### KEY BENEFITS

Superior to traditional spray paint in performance, aesthetic, function and technology, AERO is not only sustainable, but also better quality.

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#### ZERO IMPACT

AERO contains zero PVC, zero solvents, and is virtually VOC free. In application it uses zero water and emits zero carbon. It requires no primer, overspray or clear coat.

#### AERODYNAMIC

Thin doesn't begin to describe it. At 50 microns in its final form, AERO delivers unparalleled performance. Because graphics are embedded within AERO paint film, there's less drag. Less drag translates into fuel savings for any business that puts a fleet of vehicles on the road every morning.

#### CUSTOMIZABLE

AERO offers zero design limitations, with the ability to color match any color, incorporating gloss, matte and metallic finishes, and a depth of color that is unrivaled by traditional spray paint products. It can be successfully applied to a variety of substrates including composite and metal surfaces. AERO can also be engineered as a permanent or strippable solution.



#### DURABLE

Up to 17,000 times more durable than traditional spray paint, AERO surpasses it in longevity, environmental resistance, scratch protection and chip protection. It's even capable of holding carbon fiber together and containing shrapnel in the event of an accident.



#### RECYCLABLE

AERO is 100% recyclable. Its favorable environmental footprint needs less regulation, which reduces costs of compliance, including abatement and reporting costs.



#### LIGHTWEIGHT

AERO weighs less, because it simply requires less to do the job. Traditional spray paint often requires multiple layers of coating. The AERO paint film system is a one-coat process. Its ultra lightweight properties result in greater performance, as well as cost savings by reducing fuel usage.



AERO reduces the applicator's carbon footprint cost while offering a competitive alternative to traditional spray paint. Benefits include greater flexibility for customer manufacturing, lower maintenance costs, preservation of underlying assets in strippable applications, improved aerodynamics, and the elimination of incineration and disposal costs.

#### SMART CONNECTIVITY

AERO has the ability to embed electronics for advanced civilian and military wireless applications, allowing for unlimited flexibility while maintaining a single adhesive product for installation purposes.

## Satin AERO Clear 200 Physical Properties

RESISTANCE TESTS	RESULTS
Brake Fluid Resistance (ASTM 1308)	No Effect
10% HCI	No Effect
10% NaOH	Minimal Effect
10% H2SO4	No Effect
MEK	Minimal Effect
Toluene Resistance	Minimal Effect
Diesel Resistance	No Effect
Acid Spot	No Effect
Chrome Cleaner and Polish	No Effect
Tar and Road Oil Cleaner	No Effect
Window Cleaning Agent	No Effect
Washer Fluid	No Effect

RESISTANCE TESTS	RESULTS
Glass Treatment	No Effect
Wax Remover	No Effect
Protective Wax	No Effect
Vehicle Cleaning Agent	No Effect
Car Shampoo	No Effect
Paintwork Cleaner	No Effect
Tar Stain	No Effect
10-day Water Immersion	No Effect
Car Wash	No Effect
Abrasion CS-10 (500 cycles)	No Effect
Abrasion CS-17 (500 cycles)	No Effect
Shrink (500 hrs at 90°C≤ 0.5%	No Effect

CAR WASH	RESULTS
10-cycle 60° Gloss retention	97
20-cycle 60° Gloss retention	92
30-cycle 60° Gloss retention	89
40-cycle 60° Gloss retention	86

#### LAND ROVER DISCOVERY & SATIN AERO CLEAR 200





#### Performance Testing PEEL TESTING IMASS SP2000 Peel/Slip Tester • Samples Laminated to White OEM ACT Panels • 09/29/2017 After constant After Heat Moist After Heat Aging Storage 70°C/ In Delivered Condition After Climate Cycling After Cold Storage -40°C condensation 90°C 500hr 25% Humidity 40°C 100% Test @ 4"/min, 90 24hr dwell 24hr dwell 24hr dwell 24hr dwell 24hr dwell 24hr dwell (N/cm) (N/cm) (N/cm) (N/cm) (N/cm) (N/cm) 4.74 5 5.71 6.69 6.45 8.47

REMOVABILITY TESTING 09/29/2017				
Removability 500 hrs, 90°C	Removability Climate Cycling (PPV 4015, 20 cycles)	Removability As Received		
Removable, no damage	Removable, no damage	Removable, no damage		
PASS	PASS	PASS		

#### LAND ROVER DEFENDER & SATIN AERO CLEAR 200



## Performance Testing

#### CONTINUED

<b>A B R A S I O N R E S I S T A N C E</b> 9/29/2017 • DIN EN ISO 105-X12		
200 Dry Strokes 100mm, 60 cpm, 9N, Visual Evaluation	200 Wet Strokes 100mm, 60 cpm, 9N, Visual Evaluation	
No Damage	No Damage	

#### SCRATCH TESTING

Tested using Taber Multifinger Scratch/Mar Tester Model 710, 1mm ball tip, 5N weight 8/28/2017

#### Scratch Resistance 1mm tip, 5N Pass/Fail

Pass, slight indentation

PASS

STONE IMPINGEMENT RESISTANCE 10/6/2017 • DINEN ISO 20567-1				
2 x 500g Steel Shot Room Temp 150 kPA	2 x 500g Steel Shot Room Temp 150 kPA	2 x 500g Steel Shot -20°C 150 kPA		
No penetration to panel	No penetration to panel	No penetration to panel		
PASS	PASS	PASS		

#### SATIN AERO CLEAR 200



## **Communications Compatibility**

AERO films achieve over 95 percent permittivity across the radio spectrum from 4 to 18 GHz, and 70 percent across visible spectrum into the near infrared spectrum, including some transmittance into the short-wavelength and mid-wavelength IR. This allows AERO to be utilized in conjunction with onboard communications equipment including vehicle safety sensor suites, autonomous and assisted driving packages, radio antennae, and other external measuring tools. AERO Sustainable Material Technology is characterized and validated to work with both current and future vehicle platforms.

#### MEASURED PERMITTIVITY 4-16 GHZ

- $\bullet$  Black sample was extracted with 4.5 mils as the nominal thickness and at ±1 mil.
- $\bullet$  Clear sample was extracted with 7 mils as the nominal thickness and at  $\pm 1\,\text{mil}.$
- The tails, 2-4ghz and 16-18 ghz, have been truncated.

#### FOCUS BEAM EXTRACTION QR HORNS











\* Validated by 3rd party electromagnetic modeling co.

#### SUSTAINABLE MATERIAL TECHNOLOGY

AVG WAVELENGTH (UM)

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