VANTABLACK®

S-VIS

AUTOMOTIVE

ULTRA-BLACK, SPRAY APPLIED COATING

DATASHEET

WWW.SURREYNANOSYSTEMS.COM

Automotive ADAS technology relies heavily on optical systems for safety and to enhance the driver experience. Sunlight interacting with these sensor systems degrades image quality and sensor performance.

Vantablack S-VIS has the highest light absorbing properties of any commercially available coating. This extreme level of light absorption provides exceptional performance when dealing with complex and difficult stray light problems in automotive applications such as head-up displays, camera shields and vision systems.

TYPICAL APPLICATION AREAS

Head-up displays (HUD) types: DMD, LCOS and TFT projected optic systems

- Removal of sunlight ghost artefacts on car window screens
- Improved contrast ratio in DMD systems

Camera stray light shielding systems

- Sharper image in difficult lighting conditions with less pixel washout

LIDAR sensor systems

- Minimise stray light generated noise in return optics and housings

Matrix headlamps

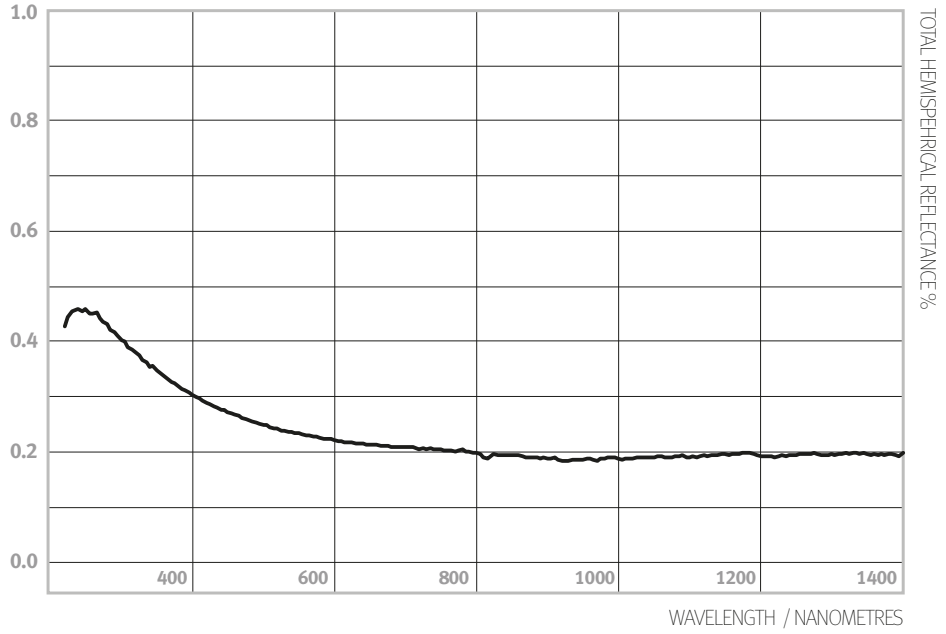
- Improved ‘off state’ light suppression

KEY FEATURES

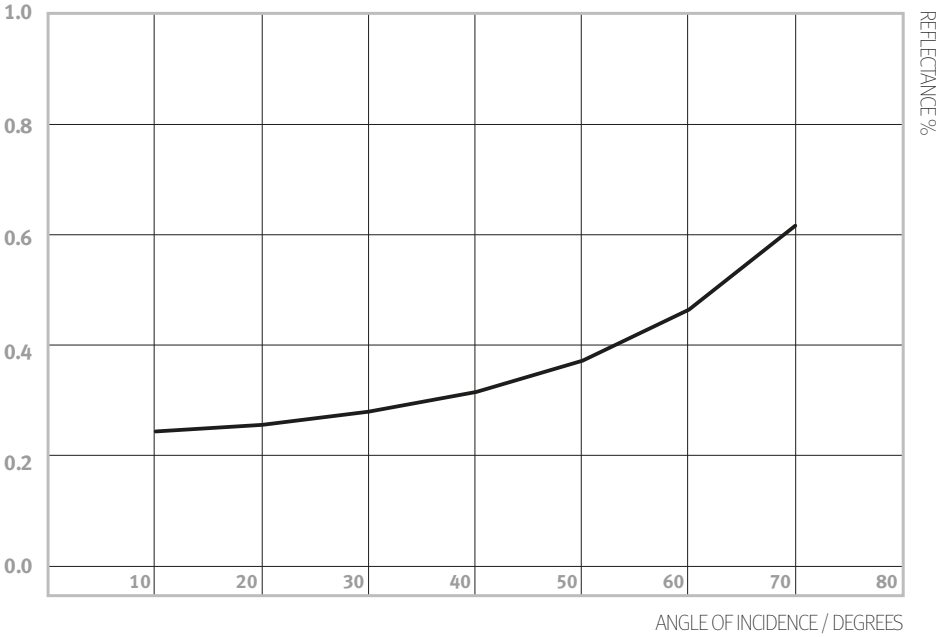
- Best available optical absorption in a commercial coating
- Very stable in harsh environments as originally developed for space use
- Used to minimise size of shields, housings and optical systems to save weight whilst retaining or improving performance
- Optical properties for stray light modelling are available in Ansys Optis, or raw data format on request
- Very low levels of outgassing and contamination
- Not susceptible to UV radiation
- Temperature extremes have no impact on the coating
- Two step application process using spray and vacuum post processing
- Applied through our UK production facility or licensed partner for on-site application.
- No ROHS listed materials used in its manufacture (ROHS compliant)
- Not notifiable under EU REACH regulations

S-VIS
TYPICAL OPTICAL PERFORMANCE

Ultraviolet to near-infrared Hemispherical reflectance



Angle dependent reflectance 300 - 800 nanometres



AUTOMOTIVE PERFORMANCE DATA

Temperature range in air	-200°C to 300°C (long term) / 350°C (short term - 48 hrs)
UV exposure resistance	Greater than SAE J2412
Fogging (photometric)	SAE J1756 – 99.55% average fog number
Dynamic climate endurance	No detectable change
Static heat ageing	No detectable change
Shock resistance	Collision and pothole
Vibration resistance	› 80 grms random vibration in 3 axis
Water/Humidity resistance	Resistant to humidity and wetting
Coating thickness	~200µm
Suitable substrates	Polymers, metals, glass and ceramics

OTHER CHARACTERISTICS

Chemical resistance	Not resistant to solvents, strong alkaline or acidic liquids
Composition	Nanostructured material made from carbon and fluorine
Limitations	Not resistant to direct impact or abrasion, so should only be used in packaged systems Not suitable as an external or internal car body finish
Export control	Automotive parts do not require an export license

SAFETY DATA

Materials safety data sheet	www.surreynanosystems.com/resources

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