

VANTABLACK[®]

VBx2

AUTOMOTIVE

SUPER-BLACK, SPRAY APPLIED
VISIBLE SPECTRUM 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 has significant potential to degrade image quality and sensor performance.

Vantablack VBx2 is an ultra-black, spray applied, surface coating designed to improve safety and performance through enhanced stray light control in automotive optical safety and user interface 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

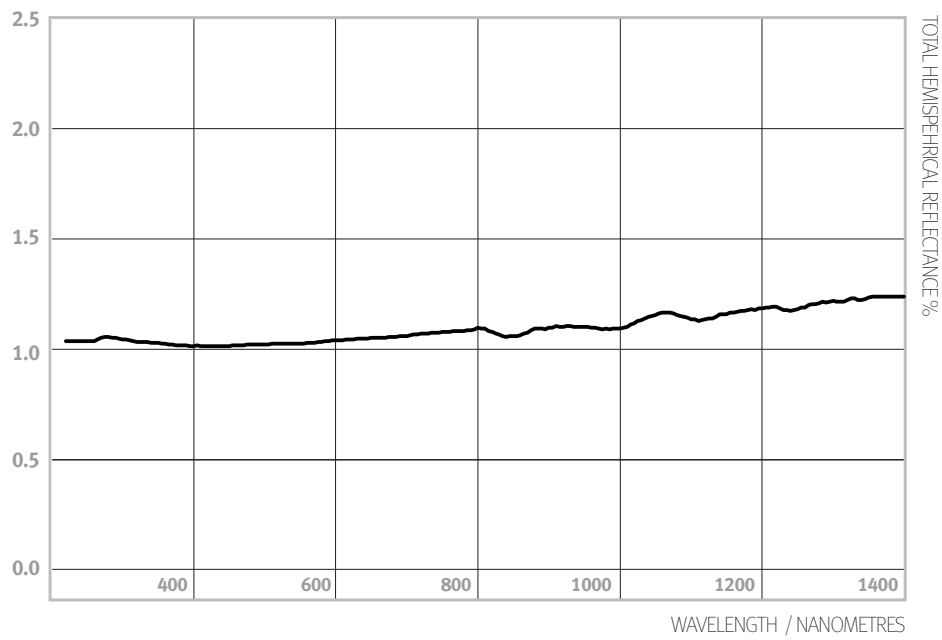
KEY FEATURES

- Exceptional optical absorption from all angles
- Conventional spray applied coating delivered through manual or robot systems
- Can be applied by end user or through our UK production facility
- Nontoxic and not damaging to the environment
- Paint is VOC exempt in Europe, Americas and Asia
- No ROHS listed materials used in its manufacture (ROHS compliant)
- Not notifiable under EU REACH regulations

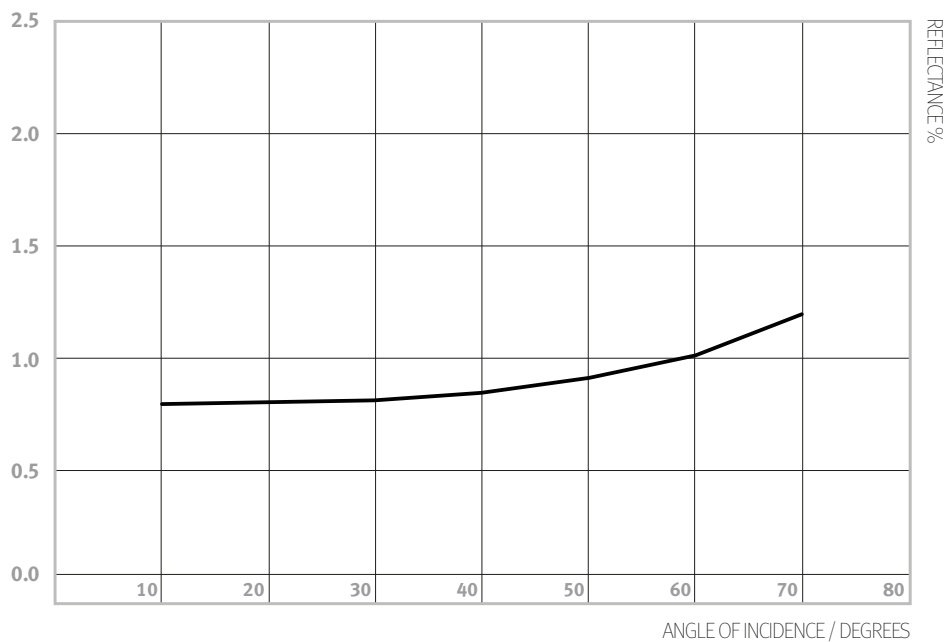
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TYPICAL OPTICAL PERFORMANCE

Ultraviolet to near-infrared Hemispherical reflectance



Angle dependent reflectance 300 - 800 nanometres



AUTOMOTIVE PERFORMANCE DATA

Temperature range in air	-150°C to 120°C (long term) / 130°C (short term - 48 hrs)
UV exposure resistance	SAE J2412
Fogging (photometric)	SAE J1756 – 98.55% average fog number
Dynamic climate endurance	Gloss number shift = 0 No flaking, discolouration or blistering
Static heat ageing	Gloss number shift = 0 No flaking, discolouration or blistering
Shock resistance	Collision and pothole
Vibration resistance	80 grms random vibration in 3 axis
Water/Humidity resistance	Resistant to humidity and wetting
Coating thickness	Average thickness ~300µm
Abrasion resistance	Light handling only
Damage repair	Damaged areas can be resprayed
Suitable substrates	Polymers, metals, glass and ceramics

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OTHER CHARACTERISTICS

Chemical resistance	Not resistant to solvents, strong alkaline or acidic liquids
Non-hazardous	The finished coating contains no hazardous materials
Composition	Solvent-based paint
Transportation and storage	Available in bulk 20l or 200l drums suitable for sea, air or land transport
EU VOC Legislation for liquid VBx2	VOC content 700g/l in compliance with <i>EU Directive 2004/42/CE Special Finish</i> coatings. VOC exempt in Europe, Americas and Asia
Limitations	Low resistance to direct impact or abrasion, so should be used in areas removed from direct abrasive contact. Not suitable as an external or internal car body finish
Export control	Vantablack VBx2 is not subject to UK export controls

SAFETY DATA

Materials safety data sheet	www.surreynanosystems.com/resources
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