

# SAFETY DATA SHEET

## Vantablack Vision VBx<sup>2.3</sup> Coating

VANTABLACK®

LIGHT  
ABSORBING  
COATINGS

Surrey NanoSystems Ltd  
East Side Business Park  
Beach Road  
Newhaven,  
East Sussex BN9 0FB  
United Kingdom

+44 (0)1273 515 899  
enquiries@surreynanosystems.com  
www.vantablack.co.uk

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

**Substances:** Carbon-based coating

**Substance name:** Vantablack Vision VBx<sup>2.3</sup> Ultra black coating

**CAS No.:** N/A

**Index No:** N/A

**EC No:** N/A

**REACH No:** This product is a mixture and therefore not directly subject of the registration requirements under REACH.

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Relevant identified uses:**

To be used for aesthetic and engineering purposes under licence by the manufacturer.

**Uses advised against:**

In areas where abrasion may occur.

**Reasons:**

It may damage the coating.

#### 1.3 Details of the supplier of the safety data sheet:

**Supplier:**

**Name:** Surrey Nanosystems Ltd.

**Address:** East Side Business Park  
Beach Road  
Newhaven  
East Sussex  
BN9 0FB  
United Kingdom

**Telephone** +44 (0) 1273 515899

**E-Mail:** enquiries@surreynanosystems.com

#### 1.4 EMERGENCY TELEPHONE NUMBER:

**United Kingdom:** +44 (0) 3301336058

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### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture:

**Product definition:** Coating

**Classification according to regulation (EC) No. 1272/2008 [CLP/GHS]**

Not a hazardous substance according to Regulation (EC) 1272/2008 (CLP).

**Ingredients of unknown toxicity:** None

**Ingredients of unknown ecotoxicity:** None

**Additional information:**

Full text of H- and EUH-phrases: see SECTION 16.

#### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]**

**Hazard components for labelling:**

None

**Hazard pictograms:**

None

**Signal word:**

None

**Hazard statements:**

None

**Precautionary statements:**

None

**EUH statements:**

None

#### 2.3 Other hazards

None known.

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### SECTION 3. Composition/information on ingredients

#### 3.1 Mixtures

##### Description of the mixture:

Mixture of synthetic resins, organic solvent and pigments.

##### Composition/information on ingredients

Substance name	CAS No.	INDEX No.	EC No.	Concentration	Classification according Regulation (EC) No. 1272 [CLP]
Carbon Black	1333-86-4	-	215-609-9	5-20%	-
Binder	N/A	-	-	60-90%	-
Stabilisers	N/A	-	-	10-20%	-

##### Additional information:

**Full text of H- and EUH-phrases: see SECTION 16.**

*This mixture does not contain further substances fulfilling the criteria of hazard class "acute toxicity" according to CLP regulation.*

### SECTION 4: First aid measures



#### 4.1 Description of first aid measures

General information: In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and seek medical advice.

Following inhalation: Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Consult a doctor.

Following skin contact: Wash skin thoroughly with soap and water or use recognised skin cleanser. Consult a doctor if symptoms occur.

Following eye contact: Remove contact lenses, irrigate copiously with clean, fresh water, holding the eyelids apart for at least 10 minutes and seek immediate medical advice.

Following ingestion: If swallowed, seek medical advice immediately and show the SDS. Keep person warm and at rest. Do NOT induce vomiting.

Self-protection of the first aider: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

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#### 4.2 Most important symptoms and effects, both acute and delayed

Principle routes of exposure are inhalation, eye contact or skin contact when coating has been abraded and particulates are present. Symptoms or effects, both acute and delayed are unknown.

#### 4.3 Indication of any immediate medical attention and special treatment needed

Notes for the doctor: Treat symptomatically.

### SECTION 5: Firefighting measures



#### 5.1 Extinguishing media:

Suitable extinguishing media: Recommended: alcohol-resistant foam, carbon dioxide (CO<sub>2</sub>), powders.

Unsuitable extinguishing media: Do not use water.

#### 5.2 Special hazards arising from the substance or mixture:

Hazardous combustion products: Fire will produce dense black smoke. Decomposition products may include the following materials: carbon monoxide, carbon dioxide, smoke. Toxic fumes may be released.

#### 5.3 Advice for fire-fighters:

Wear suitable protective equipment.

#### 5.4 Additional information:

Appropriate breathing apparatus may be required. Wear protective clothing.

### SECTION 6: Accidental release measures



#### 6.1 Personal precautions, protective equipment and emergency procedures:

##### For non-emergency personnel:

Avoid dust formation and breathing of dust. Refer to protective measures listed in Sections 7 and 8.

##### For emergency responders:

Use personal protection recommended in Section 8.

#### 6.2 Environmental precautions:

Do not release larger quantities of particulates into the environment e.g. if cleaning off coated material

#### 6.3 Methods and material for containment and cleaning up:

If the spilled material contains dust or has the potential to create dust, use an explosion-proof vacuum cleaner (ATEX rated). Use of a vacuum with high efficiency particulate air (HEPA) filtration is

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recommended. Do not create dust clouds. Water spray will not result in satisfactory removal of contamination. Organic solvents such as acetone or IPA may be used to clean contaminated surfaces. Pick up and transfer to properly labelled containers. – See Section 13.

### 6.4 Reference to other sections:

See Section 1 for emergency contact information.

See Section 8 for information on appropriate personal protective equipment.

See Section 13 on disposal.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling:

Avoid contact with skin and eyes. Avoid dust formation through abrasion and subsequent inhalation of dust. Do not create dust clouds.

Put on appropriate personal protective equipment (see Section 8).

#### Advice on general occupational hygiene:

Handle in accordance with good industrial hygiene and safety practice.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Technical measures and storage conditions:

Store in a clean and dry place.

#### Requirements for storage rooms and vessels:

Store in a clean and dry place.

#### Materials to avoid:

Oxidising agents, strong alkalis, strong acids.

### 7.3 Specific end uses:

To be used as a functional coating for aesthetic and engineering applications.

## SECTION 8: Exposure controls/personal protection

*The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.*

### 8.1 Control parameters

#### 8.1.1 Occupational exposure limits:

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring.

Standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of

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procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### 8.1.2 Exposure limits at intended use: Occupational Exposure Guidelines for carbon black

There are no exposure limits identified for this specific product. The exposure limit for one of the ingredients (carbon black) is for the United Kingdom:

- WEL: 3.5 mg/m<sup>3</sup>
- TWA inhalable: 7.0 mg/m<sup>3</sup>
- STEL inhalable

*Please note the carbon black in this coating is bound with binders and additives to form aggregates and agglomerates.*

#### 8.2 Exposure controls

##### 8.2.1 Appropriate engineering controls: Provide adequate ventilation and avoid dust formation.

##### 8.2.2 Personal protective equipment (if dust/particulate formation is expected):



##### Eye / Face protection:

Suitable eye protection: Wear safety glasses with side shields or goggles to recognised standards such as EN166.

##### Skin protection:

**Gloves:** For prolonged or repeated contact use protective gloves (e.g. nitrile or latex) according to recognized standards such as EN374. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred. Skin should be washed after contact.

**Skin protection:** Protective clothing.

**Other skin protection measures:** Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection:** If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators according to recognised EN 136 standards fitted with P2 or P3 grade filters.

##### 8.2.3 Environmental exposure controls:

In accordance with local legislation and permit requirements. Do not allow to enter drains or watercourses.

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### SECTION 9. Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

	Value
Appearance	Ultrablack coating
Physical state	Solid
Melting point/freezing point	Not applicable.
Initial boiling point/boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Odour	Odourless
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density (17°C)	0.3 – 0.8 mg/cm <sup>3</sup>
Solubility(ies)	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available.
Decomposition temperature	No data available
Viscosity	Not applicable
Explosive properties	No data available
Oxidising properties	No data available

#### 9.2 Other Information:

No additional information available.

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

No specific test data related to reactivity available for this product or its ingredients.

#### 10.2 Chemical stability

Stable under recommended storage and handling conditions (see Section 7).

#### 10.3 Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

#### 10.4 Conditions to avoid:

When exposed to high temperatures may produce hazardous decomposition products. Keep away from open flames. Avoid dust formation. Strong acids and oxidising agents.

#### 10.5 Incompatible materials:

Keep away from the following materials to prevent strong exothermic reactions:  
oxidising agents, strong alkalis, strong acids.

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### 10.6 Hazardous decomposition products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced. In the event of fire: see Section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### 11.1.1 General information

There are no data on the mixture itself.

Ingestion may cause nausea, diarrhea and vomiting. This considers, where known, delayed and immediate effects and also chronic effects of components from short-term and long-term exposure by oral, inhalation and dermal routes of exposure and eye contact.

#### 11.1.2 Acute Toxicity

##### Component information

Component	LD50 Oral (rat)	LD50 Dermal	LC50 Inhalation (rat)
Carbon black	> 8000 mg/kg.	No data	No data
Polymeric resin	> 2000 mg/kg	No data	No data
Stabilisers	> 7000 mg/kg	> 3000 mg/kg (rat)	No data

## SECTION 12: Ecological information

Do not allow significant quantities to enter drains or watercourses.

### 12.1 Toxicity

There are no data available on the mixture itself. Do not allow to enter water drains or courses.

### 12.2 Persistence and degradability:

Not available.

### 12.3 Bioaccumulative potential:

Not available.

### 12.4 Mobility in soil:

Not available.

### 12.5 Results of PBT and vPvB assessment:

Not applicable. This mixture contains no components considered to be persistent, bioaccumulative and toxic (PBT) and very bioaccumulative (vPBT).

### 12.6 Endocrine disrupting properties

No hazardous ingredients.

### 12.7 Other adverse effects:

Not negative effects known.



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### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

**Product / Packaging disposal:** The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer.

#### Waste codes / waste designations according to EWC / AVV:

EWC codes 08 02 01

**Packaging:** The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Using information provided in this safety data sheet, advice should be obtained from the relevant waste authority on the classification of empty containers. Empty containers must be scrapped or reconditioned. Dispose of containers contaminated by the product in accordance with local or national legal provisions.

#### Waste treatment options:

**Other disposal recommendations:** Do not allow to enter drains or watercourses. Dispose of according to all federal, state and local applicable regulations. If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned. For further information, contact your local waste authority.

**Additional information:** None

### SECTION 14 : Transport information

	Land transport (ADR/RID)	Inland waterway transport (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN No.	---	---	---	---
14.2 UN Proper shipping name	Not dangerous goods.	Not dangerous goods.	Not dangerous goods.	Not dangerous goods.
14.3 Transport hazard class(es)	---	---	---	---
Hazard label(s)	---	---	---	---
14.4 Packing group	---	---	---	---
14.5 Environmental hazards	No	No	No	No

14.6 **Special precautions for user**  
No data available.

14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.

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#### SECTION 15: Regulatory information

**15.1** Safety, health and environmental regulations/legislation specific for the substance or mixture

**15.1.1 EU regulations**

Not a hazardous substance according to the summation method of Regulation (EC) 1272/2008 (CLP), its various amendments and adaptations and Directive 67/548/EEC.

**Authorisations and/or restrictions on use:** No restrictions

Authorisations: Not applicable

Restrictions on use: Not applicable

**Other EU regulations:** None

**15.2 Chemical Safety Assessment:**

For this coating a chemical safety assessment is not required.

#### SECTION 16: Other information

**16.1 Explanation of the GHS classification codes:**

None.

**16.2 Training advice:** Make sure employees are aware of the hazards/risks as detailed on this Safety Data Sheet.

**16.3 Further information:**

**IMPORTANT NOTE** The information in this data sheet is not intended to be exhaustive and is based on the present state of our knowledge and on current laws: any person using the product for any purpose other than that specifically recommended in the technical data sheet without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at his own risk. It is always the responsibility of the user to take all necessary steps to fulfil the demands set out in the local rules and legislation. Always read the Material Data Sheet and the Technical Data Sheet for this product if available. All advice we give, or any statement made about the product by us (whether in this data sheet or otherwise) is correct to the best of our knowledge but we have no control over the quality or the condition of the substrate or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing otherwise, we do not accept any liability whatsoever for the performance of the product or for any loss or damage arising out of the use of the product. All products supplied and technical advice given are subject to our standard terms and conditions of sale. You should request a copy of this document and review it carefully. The information contained in this data sheet is subject to modification from time to time in the light of experience and our policy of continuous development. It is the user's responsibility to verify that this data sheet is current prior to using the product.

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**END OF SAFETY DATA SHEET**