

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 12/1/2026 Version: D

SECTION 1 Identification**1.1. Product identifier**

Product form : MWCNT (multi-walled carbon nanotubes)
Trade name : Vantablack 110, 111, 112, 120, 121

1.2. Other means of identification

Other means of identification : Functionalised MWCNT (multi-walled carbon nanotubes) polymer composite

1.3. Recommended use of the chemical and restrictions on use

Recommended use : Improving imaging technology, reducing light scatter, aesthetic uses.

1.4. Supplier's details**Manufacturer**

SurreyNanosystems Ltd
East Side Business Park, Beach Road
Newhaven, East Sussex, BN9 0FB
United Kingdom
T 01273 515899
technicalsupport@surreynanosystems.com

1.5. Emergency phone number

Emergency number : +44 (0) 3301336058

SECTION 2 Hazard Identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Note – only if item is scratched and mis-handled allowing dust to become aerosolised

Serious eye damage/eye irritation, Category 2A	H319	Causes serious eye irritation.
Specific target organ toxicity – Single exposure, Category 3, Respiratory	H335	May cause respiratory irritation

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No data available

2.2. Label elements**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



GHS08



GHS07

Signal word (CLP) :

WARNING

Contains :

MWCNT

Hazard statements (CLP) :

H225 – Highly flammable liquid and vapour
H319 – Causes serious eye irritation
H336 – May cause drowsiness or dizziness

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Precautionary statements (CLP) : P261 – Avoid breathing dust
P305 + P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P281 – Use personal protective equipment as required
Caution – substance not yet tested completely.

2.3. Other Hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according Regulation (EC) No. 1272 [CLP]
Multiwalled CNT	CAS-No.: 308068-56-6 EC-No.: 231-153-3	10-100	Eye Irrit. 2, H319 STOT SE 3, H335
Polymer	-	0-10	Non-hazardous

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.

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57) in amounts above $\geq 0.1\%$.

SECTION 4 First aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : 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.

First-aid measures after 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.

First-aid measures after skin contact : Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do NOT use solvents or thinners. Consult a doctor if symptoms occur.

First-aid measures after eye contact : Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do NOT induce vomiting.

Self protection of the first-aiders : 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.

4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after inhalation : To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Symptoms/effects after skin contact : To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Symptoms/effects after eye contact : May cause eye irritation.

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Symptoms/effects after ingestion : To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat Symptomatically

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use water spray, foam, Carbon dioxide, Powders.
Unsuitable extinguishing media : Do not use water jet spray

5.2. Specific hazards arising from the chemical

Fire hazard : Not applicable
Explosion hazard : Not applicable
Hazardous decomposition products in case of fire : Toxic fumes may be released. Carbon oxides, hydrogen fluoride

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use PPE as required. Avoid dust formation. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Notify authorities if product enters sewers or public waters.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Evacuate unnecessary personnel.

Environmental precautions : Do not allow to enter drains or watercourses. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

6.2. Environmental Precautions

Avoid Release to the environment

6.3. Methods and materials for containment and cleaning up

For containment : Do not allow to enter watercourses or drains.
Methods for cleaning up : Pick up and arrange disposal without creating dust. If using brush and shovel wet material first to reduce atomising dust, otherwise use HEPA filtered vacuum cleaner. Keep in a suitable, closed container for disposal.
Other Information : Dispose of materials or solid residues at an authorized site.

For further information refer to section 8: "Exposure controls/personal protection", For further information refer to section 13

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SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: For coating – avoid contact with coated surface. Avoid contact with skin by latex/nitrile wearing gloves if handling exposed coated part. Avoid formation of dust and aerosols by not directly scratching or abrading coated part. Normal measures for preventative fire protection.
Hygiene measures	: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
Additional hazards when processed	: Not expected to present a significant hazard under anticipated conditions of normal use.

7.2. Conditions for safe storage, including incompatibilities

Storage conditions	: Avoid contact with coated surface when storing as may damage surface.
Incompatible materials	: Oxidising agents.

7.3 Specific end use(s)

To be used as a coating for engineering applications

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

There are currently no UK statutory workplace exposure limits (WELs) specifically for nanomaterials.

NIOSH currently have a Recommended Exposure limit (REL) of 1 µg/m³ over an 8-hour TWA during a 40-hour work week for aerosolised CNT's.

8.2. Appropriate engineering controls

Appropriate engineering controls	: Avoid contact with skin by wearing gloves if handling exposed coated part.
Environmental exposure controls	: Avoid release to the environment. Do not allow to enter drains or watercourses.

8.3. Individual protection measures, such as personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment. Avoid all unnecessary exposure.

Hand protection:

Handle with gloves if handling exposed coated part. Inspect gloves prior to use. Use proper glove removal technique to avoid skin contact with this material. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected gloves have to satisfy the specifications of EU directive 89/686/EEC and the standard EN 374 derived from it.

Eye protection:

No special eye protection is required when handling coated parts, however precaution may be to wear eye protection to stop accidental touching eyes with gloves which may be contacted with coated surface.

Skin and body protection:

No special body protection is required when handling coated parts.

Respiratory protection:

Not required for normal handling procedures.

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Personal protective equipment symbol(s):



Other information:

Do not eat, drink or smoke during use.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid black coating
Color	: Black
Odor	: Odourless
Odor threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: >290°C
Viscosity, kinematic	: No data available
Explosion limits	: No data available
Particle characteristics	: No data available

9.2. Other Information

Not a flammable solid, per test method N.1 as described in Part III, sub-section 33.2.1 of the UN recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria

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 normal conditions of use.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid dust formation.

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10.5. Incompatible materials

Oxidizing agents.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates: Carbon monoxide. Carbon dioxide. Hydrogen Fluoride.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: No data available
Acute toxicity (dermal)	: No data available
Acute toxicity (inhalation)	: No data available
Skin corrosion/irritation	: No data available
Eye damage/irritation	: No data available
Germ cell mutagenicity	: No data available
Carcinogenicity	: IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity	: No data available
STOT-single exposure	: Inhalation – May cause respiratory irritation
STOT-repeated exposure	: No data available
Aspiration hazard	: No data available
Symptoms/effects after skin contact	: May cause skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation
Symptoms/effects after ingestion	: May be harmful if swallowed
Symptoms/effects after inhalation	: May be harmful if inhaled. Causes respiratory tract irritation

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

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12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13 Disposal considerations

Regional waste regulation	: Disposal must be done according to official regulations. EWC codes N/A due to product being a very small % of part coated, EWC code would be for coated part.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: 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. Hazard Codes are HP4 and HP5 in very small % of product.
Additional information	: None
Ecological waste information	: Avoid release to the environment.

SECTION 14 Transport information

In accordance with DOT / IMDG / IATA

	Land Transport (ADR/RID)	Inland waterway transport (ADN)	Sea Transport (IMDG)	Air transport (ICAO-TI/IATA-DGR)
14.1. UN number	Not dangerous goods	Not dangerous goods	Not dangerous goods	Not dangerous goods
14.2. Proper Shipping Name	Not dangerous goods	Not dangerous goods	Not dangerous goods	Not dangerous goods
14.3. Transport hazard class(es)	Not dangerous goods	Not dangerous goods	Not dangerous goods	Not dangerous goods
Hazard Labels	Not dangerous goods	Not dangerous goods	Not dangerous goods	Not dangerous goods
14.4. Packing group	Not dangerous goods	Not dangerous goods	Not dangerous goods	Not dangerous goods
14.5. Environmental hazards	Not dangerous goods	Not dangerous goods	Not dangerous goods	Not dangerous goods

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

Not applicable

14.7. Special precautions for user

No data available

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SECTION 15 Regulatory information

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

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.
REACH Annex XVII (Restriction List)	: Contains no substance(s) listed on REACH Annex XVII (Restriction Conditions)
REACH Annex XIV (Authorisation List)	: Contains no substance(s) listed on REACH Annex XIV (Authorisation List)
REACH Candidate List (SVHC)	: Contains no substance(s) listed on the REACH Candidate List
PIC Regulation (Prior Informed Consent)	: Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)
POP Regulation (Persistent Organic Pollutants)	: Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)
Ozone Regulation (2024/590)	: Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)
Council Regulation (EC) for the control of dual-use items	: Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Explosives Precursors Regulation (EU 2019/1148)

Does not contain substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)
ANNEX II REPORTABLE EXPLOSIVES PRECURSORS

List of substances on their own or in mixtures or in substances for which suspicious transactions and significant disappearances and thefts are to be reported within 24 hours.

Drug Precursors Regulation (EC 273/2004)

Does not contain substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.2. EU-Regulations

EU-Regulations

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

Authorisations : Not applicable

Restrictions on use : Not applicable

Other EU regulations:

None

15.3. Chemical Safety Assessment

For this mixture a chemical safety assessment is not required.

SECTION 16 Other information

16.1. Full text of hazard classes and H-statements

H319	Causes serious eye irritation
H335	May cause respiratory irritation

16.2. Full text of precautionary statements and P-statements

P261	Avoid breathing dust
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16.2. Full text of precautionary statements and P-statements

P305 + P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P281	Use personal protective equipment as required.

Caution – substance not yet tested completely.

16.3. Abbreviations and acronyms

ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified

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16.3. Abbreviations and acronyms

OECD	Organization for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

16.3. Training Advice

Hands on training to be administered by authorised representatives of Surrey Nanosystems Ltd only. Use of the material without training is done so at operator's risk.

16.4. Further Information

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. Brand names mentioned in this data sheet are trademarks of or are licensed to Surrey Nanosystems Ltd