## SECTION 1: IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

### 1.1 Product identifiers

| | | |
|---|---|---|
| Product Name | : | ACS Material Blue Luminescent Graphene Quantum Dots |
| Product Number | : | GNQD0101, GNQD0111, GNQD0121, GNQD0131, GNQD0141, GNQD0151 |
| Brand | : | ACS Material LLC |
| CAS-No. | : | 7440-44-0 |

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

| | | |
|---|---|---|
| Identified uses | : | Laboratory chemicals, Manufacturing of substances |

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

| | | |
|---|---|---|
| Company | : | ACS MATERIAL LLC<br>959 E Walnut, Suite 100<br>Pasadena, CA 91106<br>USA |
| Telephone | : | +1 (866)-227-0656 |
| Fax | : | +1 (781)-518-0284 |

### 1.4 Emergency telephone number

| | | |
|---|---|---|
| Emergency Phone #: | | +1 (866)-227-0656 |

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**
Not a hazardous substance or mixture.

### 2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Warning

Hazard statement(s)
H351 Suspected of causing cancer.

Precautionary statement(s)

| | |
|---|---|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |
| P280 | Wear protective gloves/ eye protection/ face protection. |
| P308 + P313 | IF exposed or concerned: Get medical advice/ attention. |
| P405 | Store locked up. |
| P501 | Dispose of contents/ container to an approved waste disposal plant. |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

None.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

| | | |
|---|---|---|
| Substance name | : | Blue Luminescent Graphene Quantum Dots |
| CAS-No | : | 7440-44-0 |
| EC-No. | : | 231-153-3 |
| Synonyms | : | Graphene QDs, graphene-dots, GDs, GNP QDs |

**Hazardous ingredients**

| Components | Concentration | CAS No. |
|---|---|---|
| Blue Luminescent Graphene Quantum Dots | <=0.1% | 7440-44-0 |
| $H_2O$ | >99% | 7732-18-5 |

For the full text of the phrases mentioned in this Section, see Section 16.

**Hazardous impurities:** None known.

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

**4.3 Indication of any immediate medical attention and special treatment needed**
No data available

## SECTION 5: FIREFIGHTING MEASURES

**5.1 Extinguishing media**

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**
No data available.

**5.3 Advice for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**
No data available

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

**6.2 Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**
For disposal see section 13.

## SECTION 7: HANDLING AND STORAGE

**7.1 Precautions for safe handling**

**Suitable extinguishing media**
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**
Store in cool place. Recommended storage temperature at 4°C. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**7.3 Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**8.1 Control parameters**

**Components with workplace control parameters**
Contains no substances with occupational exposure limit values.

**8.2 Exposure controls**
Appropriate engineering controls

Contains no substances with occupational exposure limit values.

**8.3 Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection**
Complete suit protecting against chemicals recommended. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
No special environmental precautions required.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

| | | |
|---|---|---|
| 1) | Appearance | Form: solution<br>Colour: yellow |
| 2) | Odour | A faint ammonia- or fishy-like odor |
| 3) | Odour Threshold | No data available |
| 4) | pH | No data available |
| 5) | Melting point/freezing point | No data available |
| 6) | Initial boiling point and boiling range | No data available |
| 7) | Flash point | No data available |
| 8) | Evaporation rate | No data available |
| 9) | Flammability (solid, gas) | No data available |
| 10) | Upper/lower flammability or explosive limits | No data available |
| 11) | Vapour pressure | No data available |
| 12) | Vapour density | No data available |
| 13) | Relative density | No data available |
| 14) | Water solubility | No data available |
| 15) | Partition coefficient: n- octanol/water | No data available |
| 16) | Auto-ignition temperature | No data available |
| 17) | Decomposition temperature | No data available |
| 18) | Viscosity | No data available |
| 19) | Explosive properties | No data available |
| 20) | Oxidizing properties | No data available |

### 9.2 Other safety information

No data available

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available.

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available.

### 10.4 Conditions to avoid

No data available.

**10.5 Incompatible materials**
Strong oxidizing agents

**10.6 Hazardous decomposition products**
Other decomposition products - No data available

In the event of fire: see section 5.

## SECTION 11: TOXICOLOGICAL INFORMATION

**11.1 Information on toxicological effects**

**Acute toxicity**
No data available.
Inhalation: No data available.
Dermal: No data available.
No data available

**Skin corrosion/irritation**
No data available

**Serious eye damage/eye irritation**
No data available

**Respiratory or skin sensitisation**
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.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

**Additional Information**
RTECS: No data available.

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

## SECTION 12: ECOLOGICAL INFORMATION

**12.1 Toxicity**
No data available

**12.2 Persistence and degradability**
No data available

**12.3 Bioaccumulative potential**
No data available

**12.4 Mobility in soil**
No data available

**12.5 Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**
No data available

## SECTION 13: DISPOSAL CONSIDERATIONS

**13.1 Waste treatment methods**

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

## SECTION 14: TRANSPORT INFORMATION

**UN number**
ADR/RID: no IMDG: no IATA: no

**UN proper shipping name**
ADR/RID: - IMDG: - IATA: -

**Transport hazard class(es)**
ADR/RID: - IMDG: - IATA: -

**Packaging group**
ADR/RID: - IMDG: - IATA: -

**Environmental hazards**

ADR/RID: No. IMDG: no IATA: no

**Special precautions for user**

No data available.

## SECTION 15: REGULATORY INFORMATION

**SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**

No SARA Hazards

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Graphene QDs | 7440-44-0 | |

**New Jersey Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Graphene QDs | 7440-44-0 | |

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## SECTION 16: OTHER INFORMATION

**HMIS Rating**

Health hazard: 0

**Chronic Health Hazard:**

Flammability: 0

Physical Hazard: 0

**NFPA Rating**

Health hazard: 0

Fire Hazard: 0

Reactivity Hazard: 0

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