

# SAFETY DATA SHEET

Revision Date 06/14/2019



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

### 1.1 Product identifiers

Product name : Carboxyl Quantum dots

Product Number : QSH425

Manufacturer : Ocean Nanotech, LLC

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

Identified uses : Laboratory chemicals, Manufacture of substances

### 1.3 Supplier Details

Manufacturer/Supplier : Ocean Nanotech, LLC  
7964 Arjons Drive Suite G  
San Diego, CA 92126  
United States

Telephone : +1 858 689-8808

Fax : +1 858 689-8809

Email : [info@oceannanotech.com](mailto:info@oceannanotech.com)

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Carcinogenicity (Category 1A), H350

Short-term (acute) aquatic hazard (Category 2), H401

Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)	
H350	May cause cancer.
H411	Toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
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

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## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Synonyms : Fluorescent nanocrystals  
QDs

Component	Classification	Concentration
<b>Maleic anhydride-methyl vinyl ether copolymer</b>		
CAS-No. 9011-16-9 EC-No. 618-469-0	Skin Irrit. 2; Eye Irrit. 2A; H315, H319	>= 1 - < 5 %
<b>Octadecylamine</b>		
CAS-No. 124-30-1 EC-No. 204-695-3 Index-No. 612-282-00-8	Skin Irrit. 2; Eye Dam. 1; STOT RE 2; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H315, H318, H373, H304, H400, H410 M-Factor - Aquatic Acute: 10	>= 0.1 - < 1 %
<b>Cadmium selenide</b>		
CAS-No. 1306-24-7 EC-No. 215-148-3 Index-No. 034-002-00-8	Acute Tox. 3; Acute Tox. 4; Carc. 1A; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H331, H312, H350, H373, H400, H410 M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 10	>= 0.1 - < 1 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## **SECTION 4: First aid measures**

### **4.1 Description of first-aid measures**

#### **If inhaled**

After inhalation: fresh air.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Remove contact lenses.

#### **If swallowed**

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

### **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

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## **SECTION 5: Firefighting measures**

### **5.1 Extinguishing media**

#### **Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### **Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

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

Carbon oxides

Not combustible.

Ambient fire may liberate hazardous vapours.

### **5.3 Advice for firefighters**

In the event of fire, wear self-contained breathing apparatus.

### **5.4 Further information**

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6: Accidental release measures**

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

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Evacuate the danger area, observe emergency procedures, consult an expert.  
For personal protection see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb® ). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

For precautions see section 2.2.

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

#### Storage conditions

Tightly closed.

#### Storage stability

Recommended storage temperature

2 - 8 °C

Do not freeze.

Storage class (TRGS 510): 12: Non Combustible Liquids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cadmium selenide	1306-24-7	TWA	0.2 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.01 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Suspected human carcinogen		
		TWA	0.002 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		Suspected human carcinogen		
		TWA	0.2 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		PEL	0.005 mg/m <sup>3</sup>	OSHA Specifically Regulated Chemicals/Carcinogens
		OSHA specifically regulated carcinogen		
		Potential Occupational Carcinogen		

		TWA	0.2 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		PEL	0.2 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Cadmium selenide	1306-24-7	cadmium	5 µg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Not critical			
		cadmium	5µg/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		Not critical			

## 8.2 Exposure controls

### Appropriate engineering controls

Change contaminated clothing. Wash hands after working with substance.

### 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). Safety glasses

#### Skin protection

not required

#### Respiratory protection

Not required; except in case of aerosol formation.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |  |  |
|--|--|
| a) Appearance                              | Form: dispersion<br>Color: yellow-orange |
| b) Odor                                    | No data available                        |
| c) Odor Threshold                          | No data available                        |
| d) pH                                      | No data available                        |
| e) Melting point/freezing point            | No data available                        |
| f) Initial boiling point and boiling range | No data available                        |
| g) Flash point                             | ( )No data available                     |

h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	Not applicable
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:  
The generally known reaction partners of water.

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### 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 sensitization

No data available

#### Germ cell mutagenicity

#### Carcinogenicity

Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Cadmium selenide)

3 - Group 3: Not classifiable as to its carcinogenicity to humans (Cadmium selenide)

NTP: No ingredient 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 on OSHA's list of regulated carcinogens.

#### Reproductive toxicity

##### Specific target organ toxicity - single exposure

No data available

##### Specific target organ toxicity - repeated exposure

No data available

##### Aspiration hazard

No data available

### 11.2 Additional Information

Not available

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

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

## **Components**

### **Maleic anhydride-methyl vinyl ether copolymer**

#### **Acute toxicity**

No data available

Inhalation: No data available

Dermal: No data available

No data available

#### **Skin corrosion/irritation**

Causes skin irritation.

#### **Serious eye damage/eye irritation**

Causes serious eye irritation.

#### **Respiratory or skin sensitization**

No data available

#### **Germ cell mutagenicity**

No data available

#### **Carcinogenicity**

#### **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

### **Octadecylamine**

#### **Acute toxicity**

LD50 Oral - Rat - male and female - > 2,000 mg/kg  
(OECD Test Guideline 401)

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Mouse - 250 mg/kg

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: Irritating to skin. - 4 h  
(OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Risk of serious damage to eyes. - 24 h



(OECD Test Guideline 405)

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Ames test

Salmonella typhimurium

Result: negative

**Carcinogenicity**

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

May be fatal if swallowed and enters airways.

**Cadmium selenide**

**Acute toxicity**

No data available

Acute toxicity estimate Oral - 100.1 mg/kg

(Expert judgment)

Acute toxicity estimate Inhalation - 4 h - 0.51 mg/l

(Expert judgment)

Inhalation: No data available

Dermal: No data available

No data available

**Skin corrosion/irritation**

Skin - reconstructed human epidermis (RhE)

Result: No skin irritation - 4 h

(OECD Test Guideline 431)

Remarks:

(in analogy to similar products)

The value is given in analogy to the following substances: Cadmium telluride

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Remarks:

(in analogy to similar products)

The value is given in analogy to the following substances: Cadmium telluride

**Serious eye damage/eye irritation**

Eyes - Rabbit

Result: No eye irritation - 1 h

(OECD Test Guideline 405)

Remarks:

(in analogy to similar products)

The value is given in analogy to the following substances: Cadmium telluride

**Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks:

(in analogy to similar products)

The value is given in analogy to the following substances: Cadmium telluride

**Germ cell mutagenicity**

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

**Carcinogenicity**

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

Ingestion - May cause damage to organs through prolonged or repeated exposure. -  
Kidney, Bone

Remarks:

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Aspiration hazard**

No data available

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**SECTION 12: Ecological information**

**12.1 Toxicity**

**Mixture**

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

## Components

### Maleic anhydrate-methyl vinyl ether copolymer

No data available

### Octadecylamine

No data available

### Cadmium selenide

No data available

Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 0.031 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata - 0.084 mg/l - 72 h (OECD Test Guideline 201)

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### DOT (US)

Not dangerous goods

### IMDG

UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F  
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(Octadecylamine, Cadmium selenide)  
Marine pollutant : yes

### IATA

UN number: 3082 Class: 9 Packing group: III  
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.  
(Octadecylamine, Cadmium selenide)

### Further information

Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

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## SECTION 15: Regulatory information

**SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**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**

Chronic Health Hazard

**Massachusetts Right To Know Components**

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

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

**Pennsylvania Right To Know Components**

water	CAS-No. 7732-18-5	Revision Date
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**New Jersey Right To Know Components**

water	CAS-No. 7732-18-5	Revision Date
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Maleic anhydrate-methyl vinyl ether copolymer	9011-16-9	
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**SECTION 16: Other information****Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Ocean Nanotech shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.oceannanotech.com](http://www.oceannanotech.com) for additional terms and conditions of sale.