

# SAFETY DATA SHEET

## SEQR-GA501

### SECTION 1. Chemical product and company identification

Product name : Quantum Dots Photo-Resist

Supplier: Taiwan Nanocrystals Inc.

Address: No.4, Aly. 3, Ln. 52, Sec. 1, Dongmen Rd., East Dist., Tainan City 701, Taiwan (R.O.C.)

Tel: .+886-6-208-5209

E-mail address: twnc@twncqds.com

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Flammable liquid (Category 3), H226

Carcinogenicity (Category 1), H350

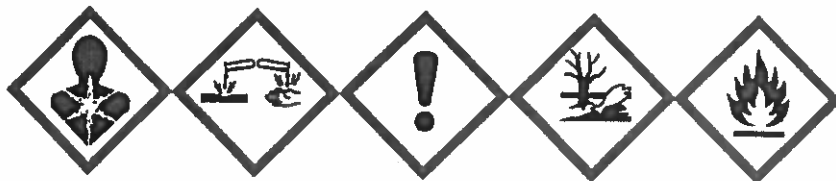
Specific target organ toxicity - repeated exposure (Category 2), H373

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

#### 2.2 Label elements

GHS-Pictogram:



Signal word: Danger

Hazard statement(s):

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation
H318	Causes serious eye damage
H350	May cause cancer
H373	May cause damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects

Precautionary statement(s):

P201	Obtain special instructions before use
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray
P273	Avoid release to the environment
P280	Wear eye protection/ face protection
P305 + P351 + P338 +	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

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P310	lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician
P308 + P313	IF exposed or concerned: Get medical advice/ attention

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Component	CAS No.	Concentration
Octadecylamine	124-30-1	0.3% ~ 3.0%
Cadmium selenide	1306-24-7	0.3% ~ 1.8 %
Zinc sulfide	1314-98-3	0.45% ~ 4.2%
Propylene glycol monomethyl ether acetate (PGMEA)	108-65-6	60.0% ~ 70.0 %
Photo initiator	119313-12-1 478556-66-0	1 ~ 2%
Acrylic Monomer	80-62-6	8 ~ 10%
Acrylic Resin	Proprietary	10 ~ 12%
Titanium dioxide	13463-67-7	0.5 ~ 1.0%

## 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.

#### 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

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)

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

No data available

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### SECTION 5: Firefighting measures

<b>5.1 Extinguishing media</b> Suitable extinguishing media Dry powder
<b>5.2 Special hazards arising from the substance or mixture</b> Carbon oxides, Nitrogen oxides (NO <sub>x</sub> ), Sulphur oxides, Cadmium/cadmium oxides, Zinc/zinc oxides, Selenium/selenium oxides
<b>5.3 Advice for firefighters</b> Wear self-contained breathing apparatus for firefighting if necessary.
<b>5.4 Further information</b> No data available

### SECTION 6: Accidental release measures

<b>6.1 Personal precautions, protective equipment and emergency procedures</b> Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
<b>6.2 Environmental precautions</b> Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Avoid heat, flame and ignition source.
<b>6.3 Methods and materials for containment and cleaning up</b> Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.

### SECTION 7: Handling and storage

<b>7.1 Precautions for safe handling</b> Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid ignition sources. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.
<b>7.2 Conditions for safe storage, including any incompatibilities</b> Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Prohibition of smoking and ignition sources. Never allow product to get in contact with water during storage. Do not store near acids. Do not freeze. Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects
<b>7.3 Specific end use(s)</b> 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

Components with workplace control parameters

#### 8.2 Exposure controls

##### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

##### Personal protective equipment

###### Eyeface protection

Face shield and safety glasses 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. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

###### Body Protection

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

###### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

###### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### SECTION 9: Physical and chemical properties

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

a) Appearance	Green Liquid
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	146°C (PGMEA)
g) Flash point	42°C (PGMEA) (Setaflash Closed Cup)

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h) Evaporation rate	0.39(PGMEA)
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	1.5%-7.0%(PGMEA)
k) Vapour pressure	3.8mmHg@25°C(PGMEA)
l) Vapour density	4.6 (Air=1)
m) Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: noctanol/ water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

#### SECTION 10: Stability and reactivity

<b>10.1 Reactivity</b>
No data available
<b>10.2 Chemical stability</b>
Stable under recommended storage conditions.
<b>10.3 Possibility of hazardous reactions</b>
No data available
<b>10.4 Conditions to avoid</b>
No data available
<b>10.5 Incompatible materials</b>
Acids, Oxidizing agents, Acid chlorides, Acid anhydrides
<b>10.6 Hazardous decomposition products</b>
Other decomposition products - No data available
In the event of fire: see section 5

#### SECTION 11: Toxicological information

<b>11.1 Information on toxicological effects</b>
<b>Acute toxicity</b>
No data available
<b>Skin corrosion/irritation</b>
No data available
<b>Serious eye damage/eye irritation</b>
No data available
<b>Respiratory or skin sensitisation</b>

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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

### Specific target organ toxicity - single exposure

No data available

### Specific target organ toxicity - repeated exposure

No data available

### Aspiration hazard

No data available

## 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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Other adverse effects

Very toxic to aquatic life with long lasting effects.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

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### SECTION 14: Transport information

14.1 UN number : 3082
14.2 UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
14.3 Transport hazard class(es): 9
14.4 Packaging group: III
14.5 Environmental hazards: yes

### SECTION 15: Regulatory information

#### 15.1 Applicable regulations :

Recommended guidelines, rules and standards for chemical safety handling, storage, transportation, loading / unloading hazard, classification and labeling, need to refer the regulations below:

Rules of Label and Hazard Communication for Dangerous and Harmful Materials

Airbone Permissible Exposure Concentration of Harmful Materials at the Labor Work Environment

Labor Safety and Health Law

Labor Safety and Health Law Enforcement Rules

Rules for Road Traffic Safety

Fire Services Act

### SECTION 16: Other information

#### 16.1 References:

The SDS of SIGMA-ALDRICH

The database of SDS of Council of Labor Affairs, Executive Yuan, Taiwan

#### 16.2 Prepared by

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