

SAFETY DATA SHEET

SEBK-RT401

SECTION 1. Chemical product and company identification

Product name : SEBK-RT401

Recommended use of the chemical and restrictions on use : Black Photoresist for Micro-LED Production

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

Flammable liquids Category 3

Skin corrosion/irritation Category 2

Specific target organ toxicity – single exposure Category 2

Specific target organ toxicity – repeated exposure Category 2

2.2 Label elements

GHS-Pictogram:



Signal word: **WARNING**

Hazard statement(s):

H226 Flammable liquid and vapor

H317 May cause an allergic skin reaction

H373 May cause damage to organs through prolonged or repeated exposure

H315 Causes skin irritation

Precautionary statement(s):

P210 Keep away from heat/sparks/open flames/hot surfaces – No smoking

P233 Keep container tightly closed

P240 Ground/bond container and receiving equipment

P241 Use explosion-proof electrical/ventilating/light/.../equipment

P242 Use only non-sparking tools

P243 Take precautionary measures against static discharge

P260 Do not breathe dust/fume/gas/mist/vapor/spray

P264 Wash hands thoroughly after handling

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P270 Do not eat, drink or smoke when using this product

P280 Wear protective gloves/protective clothing/eye protection/.../face protection

Response

P302+P352 IF ON SKIN: Wash with plenty of soap and water

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water/shower

P309+P311 IF exposed or you feel unwell: Call a POISON CENTER or doctor/physician

P314 Get medical advice/attention if you feel unwell

P321 Specific treatment (see ... on this label).

P332+P313 If skin irritation occurs: Get medical advice/attention

P362 Take off contaminated clothing and wash before reuse.

P370+P378 In case of fire: Use ... for extinction

Storage

P403+P235 Store in a well-ventilated place. Keep cool

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ... in accordance with local/regional/national/international regulations (to be specified).

2.3 Other hazards

NFPA Rating : Health=0, Flammability=2, Instability=0

(0 = Insignificant / 1 = Slight / 2 = Moderate / 3 = High / 4 = Extreme)

SECTION 3: Composition/information on ingredients

Mixtures

Component	CAS No.	Concentration
Carbon Black	1333-86-4	10 %
Photo initiator	119313-12-1	2 %
	478556-66-0	
Propylene glycol monomethyl ether acetate(PGMEA)	108-65-6	70 %
Acrylic Monomer	80-62-6	8%
Acrylic Resin	Proprietary	10%

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.

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a. Eye contact

Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

b. Skin contact

Remove contaminated clothing and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.

c. Inhalation

Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.

d. Ingestion

If vomiting occurs, rinse mouth and keep head lower than hips to help prevent aspiration. Get medical attention, if needed.

e. Most important acute and delayed symptoms/effects

Swallowing may nauseate and cause pain in esophagus and stomach.

f. First aid and notes for physicians

Treat symptomatically. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide, alcohol foam or dry chemical.

5.2 Special hazards arising from the substance or mixture

Flammable Liquid may release vapors that form flammable mixtures when temperatures are at or above the flash point. Toxic gases will form upon combustion.

5.3 Advice for firefighters

Firefighters should wear self-contained breathing apparatus and protective clothing.

Wear full protective clothing and self-contained breathing apparatus.

5.4 Further information

No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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Wear appropriate clothing. Wear respiratory protection. Eliminate all sources of ignition.

Vapors can accumulate in low areas.

6.2 Environmental precautions

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.

6.3 Methods and materials for containment and cleaning up

Small spills : Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal.

Large spills : Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid heat, sunlight, ignition sources. Handle with care. Open only under well ventilated conditions. Loosen closure cautiously before opening. When using this substance, avoid breathing, ingestion and use respiratory protection when in dust or mist form. Wear chemical goggles resistant gloves and protective clothing to prevent contact. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Store only in tightly closed, properly vented containers away from heat, sparks, open flame and strong oxidizing agents. Storage temp. under 15°C in dark or yellow light.

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

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

Eye/face 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

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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	Black Liquid
b) Odour	Ester-like
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) (Closed Cup)
h) vaporation rate	0.39(PGMEA)
i) Flammability (solid, gas)	Flammable liquids
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	1.02
n) Water solubility	No data available
o) Partition coefficient: n-octanol/ water	0.43
p) Auto-ignition temperature	315°C
q) Decomposition temperature	No data available
r) Viscosity	5~6 CPS (at 25°C)
s) Explosive properties	No data available
t) Oxidizing properties	No data available

SECTION 10: Stability and reactivity

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10.1 Reactivity

This material is stable under recommended storage and handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Strong oxidizing agents, strong acids, strong bases and strong reducing agents.

10.4 Conditions to avoid

Avoid heat, flames, sparks and other sources of ignition.

10.5 Incompatible materials

Acids, Oxidizing agents, Acid chlorides, Acid anhydrides

10.6 Hazardous decomposition products

Oxidization of carbon

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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.

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

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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

Harmful to aquatic life.

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.

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

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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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