

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 28.04.2023

Version number 9 (replaces version 8)

Revision: 28.04.2023

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

- **1.1 Product identifier**
- **Trade name:** SU-8 Series Resists
- **Article number:** Y131240, Y131252, Y131259, Y131263, Y131269, Y131273
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
 No further relevant information available.
- **Sector of Use** SU16 Manufacture of computer, electronic and optical products, electrical equipment
- **Product category** PC30 Photo-chemicals
- **Application of the substance / the mixture** Photoresist
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 Kayaku Advanced Materials, Inc.
 200 Flanders Road
 Westborough, MA 01581
 Tel: (617) 965-5511
 Fax: (617) 965-5818
- **Further information obtainable from:**
 Product Safety
 Email: productsafety@kayakuam.com
- **1.4 Emergency telephone number:**
 Kayaku Advanced Materials : 617-965-5511
 Chemtrec USA Emergency : 800-424-9300 (24 hr)
 Chemtrec International Emergency : 703-527-3887 (24 hr)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

 Eye Dam. 1 H318 Causes serious eye damage.



GHS09 environment

 Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

 Skin Irrit. 2 H315 Causes skin irritation.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 STOT SE 3 H336 May cause drowsiness or dizziness.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**
 The product is classified and labelled according to the CLP regulation.

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· Hazard pictograms



GHS05 GHS07 GHS09

· Signal word Danger

· Hazard statements

H315 Causes skin irritation.

H318 Causes serious eye damage.

H317 May cause an allergic skin reaction.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

· Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

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

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

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

P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: Get medical advice/attention.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· 2.3 Other hazards

· Results of PBT and vPvB assessment

 · **PBT:** Not applicable.

 · **vPvB:** Not applicable.

· Determination of endocrine-disrupting properties

None of the ingredients are included in the list established in accordance with Article 59(1) for having endocrine disrupting properties.


None of the ingredients are substances 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.

SECTION 3: Composition/information on ingredients

· 3.2 Mixtures

 · **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

	Epoxy resin	35-75%
	 Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	

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CAS: 96-48-0 EINECS: 202-509-5	gamma-Butyrolactone ☠ Eye Dam. 1, H318; ☠ Acute Tox. 4, H302; STOT SE 3, H336	20-60%
CAS: 108-32-7 EINECS: 203-572-1 Index number: 607-194-00-1	Propylene carbonate ⚠ Skin Irrit. 2, H315; Eye Irrit. 2, H319	1-5%
CAS: 89452-37-9	Sulfonium, (thiodi-4,1-phenylene) bis[diphenyl-, (OC-6-11)-hexafluoroantimonate (1-) (1:2) ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Sens. 1, H317	0.5-5%
CAS: 71449-78-0	Sulfonium, diphenyl[4-(phenylthio)phenyl]-, (OC-6-11)-hexafluoroantimonate(1-) (1:1) ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Skin Sens. 1, H317	0.5-5%

 · **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· 4.1 Description of first aid measures

· General information:

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· After inhalation:

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.

· After eye contact:

Wash eyes immediately with a large amount of water or normal saline, occasionally lifting upper and lower eye lids until no evidence of chemical remains (about 20 minutes). Remove contact lenses if present and easy to remove. Seek immediate medical attention.

· After swallowing: Do not induce vomiting; call for medical help immediately.

· 4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.

· 4.3 Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

· 5.1 Extinguishing media

· Suitable extinguishing agents:

Fire-extinguishing powder

Alcohol resistant foam

ABC powder

· For safety reasons unsuitable extinguishing agents: Water with full jet

· 5.2 Special hazards arising from the substance or mixture

In case of fire, the following can be released:

Carbon monoxide (CO)

Hydrogen fluoride (HF)

Formation of toxic gases is possible during heating or in case of fire.

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- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
- **6.2 Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
- **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/exhaust at the workplace.
Store in cool, dry place in tightly closed receptacles.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Use explosion-proof apparatus / fittings and spark-proof tools.
Protect against electrostatic charges.
Keep ignition sources away - Do not smoke.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and containers:**
Due to photo-sensitivity, store product in brown-glass or stainless steel receptacles.
Store in a cool location.
- **Information about storage in one common storage facility:**
Do not store together with oxidising and acidic materials.
Do not store together with alkalis (caustic solutions).
- **Further information about storage conditions:**
Protect from exposure to the light.
Store in cool, dry conditions in well sealed containers.
This product is hygroscopic.
- **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

· **Ingredients with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

· **Additional information:** The lists valid during the making were used as basis.

· 8.2 Exposure controls

· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**

Keep away from food and beverages.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Respiratory protection:**

In case of low exposure use cartridge respirator. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Hand protection**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves** Nitrile rubber, NBR

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye/face protection**



Tightly sealed goggles

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· **General Information**

· **Physical state**

Liquid

· **Colour:**

Clear to light yellow

· **Odour:**

Mild

· **Odour threshold:**

Not determined.

· **Melting point/freezing point:**

Undetermined.

· **Boiling point or initial boiling point and boiling range**

205 °C

· **Flammability**

Not applicable.

· **Lower and upper explosion limit**

· **Lower:**

2.7 Vol %

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· Upper:	15.6 Vol %
· Flash point:	100 °C
· Auto-ignition temperature:	445 °C
· Decomposition temperature:	Not determined.
· pH	Not determined.
· Viscosity:	
· Kinematic viscosity	Not determined.
· Dynamic:	Not determined.
· Solubility	
· water:	Partly miscible.
· Partition coefficient n-octanol/water (log value)	Not determined.
· Vapour pressure at 20 °C:	1 hPa
· Density and/or relative density	
· Density:	Not determined.
· Relative density	See Other information
· Vapour density	Not determined.

· 9.2 Other information	Name	Number	Sp. Grav.	VOC(%by wt.)	VOC(g/L)
	SU-8 2	Y131240	1.169	<5.0	25
	SU-8 5	Y131252	1.182	<5.0	30
	SU-8 10	Y131259	1.190	<5.0	35
	SU-8 25	Y131263	1.195	<5.0	35
	SU-8 50	Y131269	1.201	<5.0	40
	SU-8 100	Y131273	1.206	<5.0	45

· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product does not present an explosion hazard.
· Change in condition	
· Evaporation rate	Not determined.

· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	Void
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void

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- | | |
|----------------------------------|------|
| · Organic peroxides | Void |
| · Corrosive to metals | Void |
| · Desensitised explosives | Void |

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability** Stable
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** Exothermic polymerisation.
- **10.4 Conditions to avoid**
Heat, flames and sparks. Extremes of temperature and direct sunlight.
Contact with incompatible materials.
- **10.5 Incompatible materials:** Strong Oxidizing Agents, Strong Acids, Strong Bases
- **10.6 Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Antimony oxide
Corrosive gases/vapours
Danger of forming toxic pyrolysis products.

SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

Epoxy resin

Oral	LD50	>2000 mg/kg (Rat)
Dermal	LD50	>2000 mg/kg (rabbit)
Inhalative	LC50	5 mg/L (Rat)

96-48-0 gamma-Butyrolactone

Oral	LD50	1540 mg/kg (Rat)
Dermal	LD50	5000 mg/kg (gui)
Inhalative	LC50/4 h	>5.1 mg/l (Rat)

108-32-7 Propylene carbonate

Oral	LD50	29000 mg/kg (Rat)
Dermal	LD50	>20,000 mg/kg (rabbit)

- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye damage.
- **Respiratory or skin sensitisation**
May cause an allergic skin reaction.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.

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- **STOT-single exposure**
May cause drowsiness or dizziness.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**

 · **Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information

· 12.1 Toxicity

 · **Aquatic toxicity:**
Epoxy resin

100<LC/EC/IC 50	≤1000 mg/l (algae)
	≤1000 mg/l (fish)
	≤1000 mg/l (invertebrates)

96-48-0 gamma-Butyrolactone

EC50/17 h	>10000 mg/l (bacterium)
EC50/48 h	>500 mg/l (daphnia magna)
EC50/72 h	360 mg/l (green algae)
LC50/96 h	>220 - <460 mg/l (golden orfe)

89452-37-9 Sulfonium, (thiodi-4,1-phenylene) bis[diphenyl-, (OC-6-11)-hexafluoroantimonate (1-) (1:2)

LC50/24 h	4.4 mg/l (daphnia)
LC50/48 hr	0.68 mg/L (daphnia)

71449-78-0 Sulfonium, diphenyl[4-(phenylthio)phenyl]-, (OC-6-11)-hexafluoroantimonate(1-) (1:1)

LC50/24 h	4.4 mg/l (daphnia)
LC50/48 hr	0.68 mg/L (daphnia)

 · **12.2 Persistence and degradability** A part of the components is biodegradable.

 · **12.3 Bioaccumulative potential** No further relevant information available.

 · **12.4 Mobility in soil** No further relevant information available.

 · **12.5 Results of PBT and vPvB assessment**

 · **PBT:** Not applicable.

 · **vPvB:** Not applicable.

 · **12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

 · **12.7 Other adverse effects**

 · **Remark:** Toxic for fish

 · **Additional ecological information:**

 · **General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

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SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

· Recommendation

Must not be disposed together with household garbage. Do not allow product to reach sewage system.
 Disposal must be made in accordance with International, National, and regional regulations.

· Uncleaned packaging:

· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· 14.1 UN number or ID number

· ADR, IMDG, IATA

UN3082

· 14.2 UN proper shipping name

· ADR

ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
 LIQUID, N.O.S. (Hexafluoroantimonate salt,
 Triarylsulfonium salt)

· IMDG

ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
 LIQUID, N.O.S. (Sulfonium, diphenyl[4-(phenylthio)phenyl]-,
 (OC-6-11)-hexafluoroantimonate(1-) (1:1), Sulfonium,
 (thiodi-4,1-phenylene) bis[diphenyl-, (OC-6-11)-
 hexafluoroantimonate (1-) (1:2)), MARINE POLLUTANT

· IATA

ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
 LIQUID, N.O.S. (Sulfonium, diphenyl[4-(phenylthio)phenyl]-,
 (OC-6-11)-hexafluoroantimonate(1-) (1:1), Sulfonium,
 (thiodi-4,1-phenylene) bis[diphenyl-, (OC-6-11)-
 hexafluoroantimonate (1-) (1:2))

· 14.3 Transport hazard class(es)

· ADR, IMDG, IATA



· Class

9 Miscellaneous dangerous substances and articles.

· Label

9

· 14.4 Packing group

· ADR, IMDG, IATA

III

· 14.5 Environmental hazards:

Product contains environmentally hazardous substances:
 Sulfonium, (thiodi-4,1-phenylene) bis[diphenyl-, (OC-6-11)-
 hexafluoroantimonate (1-) (1:2)

· Marine pollutant:

Yes

· 14.6 Special precautions for user

Warning: Miscellaneous dangerous substances and articles.

· Hazard identification number (Kemler code):

90

· EMS Number:

F-A,S-F

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· Stowage Category	A
· 14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· Transport category	3
· Tunnel restriction code	E
· IMDG	
· Limited quantities (LQ)	5L
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· UN "Model Regulation":	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (HEXAFLUOROANTIMONATE SALT, TRIARYLSULFONIUM SALT), 9, III

SECTION 15: Regulatory information

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

No further relevant information available.

· **REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3**

· **DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

None of the ingredients is listed.

· **REGULATION (EU) 2019/1148**

· **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**

None of the ingredients is listed.

· **Annex II - REPORTABLE EXPLOSIVES PRECURSORS**

None of the ingredients is listed.

· **Regulation (EC) No 273/2004 on drug precursors**

None of the ingredients is listed.

· **Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors**

None of the ingredients is listed.

· **15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**

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SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases*H302 Harmful if swallowed.**H315 Causes skin irritation.**H317 May cause an allergic skin reaction.**H318 Causes serious eye damage.**H319 Causes serious eye irritation.**H336 May cause drowsiness or dizziness.**H400 Very toxic to aquatic life.**H410 Very toxic to aquatic life with long lasting effects.***· Classification according to Regulation (EC) No 1272/2008***Art. 9(1) of Regulation (EC) No. 1272/2008 was used for classification purposes.***· Department issuing SDS: Product safety department****· Contact: Tom Cole, EHS Manager (tcole@kayakuam.com)****· Revision History:***The manufacturer's information in Section 1, the product hazard information in Section 2 and the component hazard information in Section 3 have been updated.***· Version number of previous version: 8****· Abbreviations and acronyms:***RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)**ICAO: International Civil Aviation Organisation**ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)**IMDG: International Maritime Code for Dangerous Goods**IATA: International Air Transport Association**GHS: Globally Harmonised System of Classification and Labelling of Chemicals**EINECS: European Inventory of Existing Commercial Chemical Substances**ELINCS: European List of Notified Chemical Substances**CAS: Chemical Abstracts Service (division of the American Chemical Society)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Acute Tox. 4: Acute toxicity – Category 4**Skin Irrit. 2: Skin corrosion/irritation – Category 2**Eye Dam. 1: Serious eye damage/eye irritation – Category 1**Eye Irrit. 2: Serious eye damage/eye irritation – Category 2**Skin Sens. 1: Skin sensitisation – Category 1**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3**Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1**Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1**Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2*