

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 13.10.2021

Version number 7

Revision: 13.10.2021

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

- **1.1 Product identifier**
- **Trade name:** SU-8 Type P Series Resists (4.5cPs, 25cPs, 30cPs, 41cPs, 60cPs)
- **Article number:** Y121022, Y121041, Y121042, Y121043, Y121045
- **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
- **Application of the substance / the mixture** Photoresist
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
 Manufacturer:
 Kayaku Advanced Materials
 200 Flanders Road
 Westborough, MA 01581
 Telephone: (617) 965-5511
 Fax: (617) 965-5818
- Importer:
 A-Gas Electronic Materials
 Unit 3, IO Centre
 Swift Valley
 Rugby, Warwickshire
 CV21 1TW, UK
 Tel: +44-0-1788-537535
 Fax: +44-0-1788-535835
 Website: www.agasem.com
 Email: customerservice.em@agas.com
- **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**



Flam. Liq. 3 H226 Flammable liquid and vapour.



Acute Tox. 4	H332 Harmful if inhaled.
Skin Irrit. 2	H315 Causes skin irritation.
Eye Irrit. 2	H319 Causes serious eye irritation.

(Contd. on page 2)

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(Contd. of page 1)

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H336 May cause drowsiness or dizziness.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

· 2.2 Label elements

· Labelling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

· Hazard pictograms



GHS02 GHS07

· Signal word Warning

· Hazard-determining components of labelling:

Epoxy resin

1-Methoxy-2-propanol acetate

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)

· Hazard statements

H226 Flammable liquid and vapour.

H332 Harmful if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H317 May cause an allergic skin reaction.

H336 May cause drowsiness or dizziness.

H412 Harmful to aquatic life with long lasting effects.

· Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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.

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.

P370+P378 In case of fire: Use alcohol resistant foam to extinguish.

P370+P378 In case of fire: Use fire-extinguishing powder to extinguish.

P370+P378 In case of fire: Use carbon dioxide to extinguish.

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

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.

(Contd. on page 3)

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 · **vPvB:** Not applicable.

(Contd. of page 2)

SECTION 3: Composition/information on ingredients

 · **3.2 Chemical characterisation: Mixtures**

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

 · **Dangerous components:**

CAS: 108-65-6 EINECS: 203-603-9	1-Methoxy-2-propanol acetate Flam. Liq. 3, H226; STOT SE 3, H336	55-80%
	Epoxy resin Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	20-45%
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	<1%
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	<1%

 · **Additional Components:**

CAS: 108-32-7 EINECS: 203-572-1	Propylene carbonate	Skin Irrit. 2, H315; Eye Irrit. 2, H319	<1%
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 · **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:** Immediately remove any clothing soiled by the product.

 · **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:** If symptoms persist consult doctor.

 · **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:**

Alcohol resistant foam

Fire-extinguishing powder

Carbon dioxide

 · **For safety reasons unsuitable extinguishing agents:**

Water with full jet

(Contd. on page 4)

Safety data sheet
according to 1907/2006/EC, Article 31

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(Contd. of page 3)

*Water***· 5.2 Special hazards arising from the substance or mixture***Containers may explode due to pressure increase when container is exposed to extreme heat. Vapors may travel a considerable distance to a source of ignition and flash back along vapor trail.***· 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**Keep away from ignition sources.***· 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.**Do not flush with water or aqueous cleansing agents***· 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.**Keep away from heat and direct sunlight.**Prevent formation of aerosols.***· Information about fire - and explosion protection:***Keep ignition sources away - Do not smoke.**Use explosion-proof apparatus / fittings and spark-proof tools.**Protect against electrostatic charges.***· 7.2 Conditions for safe storage, including any incompatibilities****· Storage:****· Requirements to be met by storerooms and containers:***Store in a cool location.**Due to photo-sensitivity, store product in brown-glass or stainless steel receptacles.***· 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.**Store receptacle in a well ventilated area.*

(Contd. on page 5)

Safety data sheet

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Revision: 13.10.2021

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(Contd. of page 4)

 · 7.3 **Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

 · 8.1 **Control parameters**

 · **Additional information about design of technical facilities:** No further data; see item 7.

 · **Ingredients with limit values that require monitoring at the workplace:**
108-65-6 1-Methoxy-2-propanol acetate

WEL	Short-term value: 548 mg/m ³ , 100 ppm
	Long-term value: 274 mg/m ³ , 50 ppm
Sk	

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

 · 8.2 **Exposure controls**

 · **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.

 · **Protection of hands:**


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 protection:**


Tightly sealed goggles

SECTION 9: Physical and chemical properties

 · 9.1 **Information on basic physical and chemical properties**

 · **General Information**

 · **Appearance:**

Form:	Liquid
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Colour:	Clear
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Odour:	Characteristic
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(Contd. on page 6)

Safety data sheet

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Printing date 13.10.2021

Version number 7

Revision: 13.10.2021

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(Contd. of page 5)

· Odour threshold:	Not determined.		
· pH-value:	Not determined.		
· Change in condition Melting point/freezing point: Initial boiling point and boiling range:	Undetermined. 146 °C		
· Flash point:	44 °C		
· Flammability (solid, gas):	Not applicable.		
· Ignition temperature:	315 °C		
· Decomposition temperature:	Not determined.		
· Auto-ignition temperature:	Product is not selfigniting.		
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.		
· Explosion limits: Lower: Upper:	1.5 Vol % 10.8 Vol %		
· Vapour pressure at 20 °C:	3.4 hPa		
· Density: · Relative density · Vapour density · Evaporation rate	Not determined See Table 1 Other Information Not determined. Not determined.		
· Solubility in / Miscibility with water:	Not miscible or difficult to mix.		
· Partition coefficient: n-octanol/water:	Not determined.		
· Viscosity: Dynamic: Kinematic:	Not determined. Not determined.		
· 9.2 Other information	Name	Number	Sp. Grav.
	SU-8 Type P 4.5 cPs	Y121022	1.01
	SU-8 Type P 10 cPs	Y121042	1.02
	SU-8 Type P 30 cPs	Y121043	1.05
	SU-8 Type P 41 cPs	Y121041	1.05
	SU-8 Type P 60 cPs	Y121045	1.07

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **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

(Contd. on page 7)

Safety data sheet

according to 1907/2006/EC, Article 31

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Trade name: SU-8 Type P Series Resists (4.5cPs, 25cPs, 30cPs, 41cPs, 60cPs)

(Contd. of page 6)

- **10.6 Hazardous decomposition products:**
 Carbon monoxide and carbon dioxide
 Corrosive gases/vapours
 Danger of forming toxic pyrolysis products.

SECTION 11: Toxicological information

· 11.1 Information on toxicological effects

- **Acute toxicity**
 Harmful if inhaled.

· 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)

108-65-6 1-Methoxy-2-propanol acetate

Oral	LD50	8532 mg/kg (Rat)
Dermal	LD50	>5000 mg/kg (Rat)
Inhalative	LC50/6 h	4345 ppm (Rat)

- **Primary irritant effect:**
- **Skin corrosion/irritation**
 Causes skin irritation.
- **Serious eye damage/irritation**
 Causes serious eye irritation.
- **Respiratory or skin sensitisation**
 May cause an allergic skin reaction.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **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.
- **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.

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)

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

EC50/17 h	>10000 mg/l (<i>Pseudomonas putida</i>)
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(Contd. on page 8)

Safety data sheet

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Trade name: SU-8 Type P Series Resists (4.5cPs, 25cPs, 30cPs, 41cPs, 60cPs)

(Contd. of page 7)


EC50/48 h	>500 mg/l (daphnia magna)
EC50/72 h	>500 mg/l (scenedesmus subspicatus)
89452-37-9 Sulfonium, (thiodi-4,1-phenylene) bis[diphenyl-, (OC-6-11)-hexafluoroantimonate (1-) (1:2)	
EC50/17 h	>10000 mg/l (Pseudomonas putida)
EC50/48 h	>500 mg/l (daphnia magna)
EC50/72 h	>500 mg/l (scenedesmus subspicatus)

- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**
 Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
 Harmful to aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

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.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· 14.1 UN-Number	
· ADR, IMDG, IATA	UN1866
· 14.2 UN proper shipping name	
· ADR	1866 RESIN SOLUTION
· IMDG, IATA	RESIN SOLUTION
· 14.3 Transport hazard class(es)	
· ADR, IMDG, IATA	
	
· Class	3 Flammable liquids.
· Label	3

(Contd. on page 9)

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(Contd. of page 8)

· 14.4 Packing group	
· ADR, IMDG, IATA	III
· 14.5 Environmental hazards:	
· Marine pollutant:	No
· 14.6 Special precautions for user	Warning: Flammable liquids.
· Hazard identification number (Kemler code):	30
· EMS Number:	F-E, S-E
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	5L
· Transport category	3
· Tunnel restriction code	D/E
· UN "Model Regulation":	UN1866, RESIN SOLUTION, 3, III

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
No further relevant information available.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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**
 H226 Flammable liquid and vapour.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 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.
- **Department issuing SDS:** Product safety department
- **Contact:** Tom Cole, EHS Manager (tcole@kayakuAM.com)
- **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)

(Contd. on page 10)

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(Contd. of page 9)

*LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Flam. Liq. 3: Flammable liquids – Category 3**Acute Tox. 4: Acute toxicity – Category 4**Skin Irrit. 2: Skin corrosion/irritation – Category 2**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 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3*

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