

Printing date 03/12/2024 Reviewed on 03/12/2024

1 Identification

- · Product identifier
- · Trade name: SU-8 Type P Series Resists (4.5cPs, 10cPs, 30cPs, 60cPs)
- · Product number: Y121022, Y121042, Y121043, Y121045 · Application of the substance / the mixture Photoresist
- · 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

· Information department:

Product Safety

Email: productsafety@kayakuam.com

Emergency telephone number:

Kayaku Advanced Materials : 617-965-5511 Chemtrec USA Emergency : 800-424-9300

Chemtrec International Emergency: 703-527-3887

2 Hazard(s) identification

· Classification of the substance or mixture



GHS02 Flame

Flammable Liquids 3 H226 Flammable liquid and vapor.



GHS07

Acute Toxicity - Inhalation 4 H332 Harmful if inhaled. Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

Sensitization - Skin 1 H317 May cause an allergic skin reaction. Specific Target Organ Toxicity - Single Exposure 3 H336 May cause drowsiness or dizziness.

Aquatic Acute 3 H402 Harmful to aquatic life.

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

- · Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms





GHS02

GHS07

· **Signal word** Warning

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· Hazard-determining components of labeling:

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 vapor.

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/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapors/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 person to fresh air and keep 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.

· Classification system:

· NFPA ratings (scale 0 - 4)



Health = 2 Fire = 2 Reactivity = 0

· HMIS-ratings (scale 0 - 4)



Health = 2 Fire = 2Reactivity = 0

- · Other hazards
- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.



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3 Composition/information on ingredients

- · Chemical characterization: Mixtures
- · Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous	•	
108-65-6	1-Methoxy-2-propanol acetate	50-80%
	🌣 Flammable Liquids 3, H226; 🚺 Specific Target Organ Toxicity - Single Exposure 3, H336	
	Epoxy resin	20-50%
	🔖 Skin Irritation 2, H315; Eye Irritation 2A, H319; Sensitization - Skin 1, H317	
71449-78-0	Sulfonium, diphenyl[4-(phenylthio)phenyl]-, (OC-6-11)-hexafluoroantimonate(1-) (1:1)	<1%
	🔖 Aquatic Acute 1, H400; Aquatic Chronic 1, H410; 🕠 Sensitization - Skin 1, H317	
89452-37-9	Sulfonium, (thiodi-4,1-phenylene) bis[diphenyl-,(OC-6-11)-hexafluoroantimonate (1-) (1:	<1%
	2)	
	🔖 Aquatic Acute 1, H400; Aquatic Chronic 1, H410; 🕠 Sensitization - Skin 1, H317	
Additional C	Components:	<u> </u>
108-32-7 Pi	opylene carbonate \$\frac{\lambda}{V}\$ Skin Irritation 2, H315; Eye Irritation 2A, H319	<1%

4 First-aid measures

- · 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:

Do not induce vomiting unless instructed to do so by a physician. Wash out mouth with water and keep person at rest. Seek immediate medical attention.

- · Information for doctor:
- · Most important symptoms and effects, both acute and delayed No further relevant information available.
- Indication of any immediate medical attention and special treatment needed Treat symptomatically.

5 Fire-fighting measures

- · Extinguishing media
- · Suitable extinguishing agents:

Alcohol resistant foam

Fire-extinguishing powder

Carbon dioxide

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

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· Advice for firefighters

· Protective equipment: Wear SCBA.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

· Environmental precautions:

Do not allow product to reach sewage system or any drains.

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/surface or ground water.

· 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

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.

7 Handling and storage

- · Handling:
- · Precautions for safe handling

Ensure good ventilation/exhaust at the workplace.

Keep away from heat and direct sunlight.

Prevent formation of aerosols.

· Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Use explosion-proof apparatus / fittings and spark-proof tools.

Protect against electrostatic charges.

- · 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 oxidizing and acidic materials.

Do not store together with alkalis (caustic solutions).

· Further information about storage conditions:

Protect from exposure to the light.

Keep container well-sealed in cool, dry location.

Store receptacle in a well ventilated area.

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



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8 Exposure controls/personal protection

- · Additional information about design of technical systems: No further data; see section 7.
- · Control parameters
- · Components with limit values that require monitoring at the workplace:

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

108-65-6 1-Metho	pxy-2-propanol acetate
WEEL	50 ppm
71449-78-0 Sulfo	nium, diphenyl[4-(phenylthio)phenyl]-, (OC-6-11)-hexafluoroantimonate(1-) (1:1)
	ACGIH TLV TWA: 0.5 mg/m³
NIOSH IDLH	50 mg/m^3
OSHA PEL	0.5 mg/m^3
89452-37-9 Sulfo	nium, (thiodi-4,1-phenylene) bis[diphenyl-,(OC-6-11)-hexafluoroantimonate (1-) (1:2)
ACGIH TLV TWA	0.5 mg/m^3
NIOSH IDLH	50 mg/m^3
OSHA PEL	0.5 mg/m^3

- · Additional information: The lists that were valid during the creation were used as basis.
- · 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 equipment:

In case of low exposure, use cartridge respirator. In case of intensive or longer exposure, use SCBA.

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 Contact glove manufacture for break-through time.
- · Eye protection:



Tightly sealed goggles

· Body protection: Long-sleeved work clothes



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Physical and chemical proper	ties				
Information on basic physical and c	chemical prop	perties			
General Information					
Appearance:					
Form:	Liquid				
Color:	Amber co				
Odor:	Ether-like				
Odor threshold:	Not deter	mined.			
pH-value:	Not deter	mined.			
Change in condition					
Melting point/Melting range:	Undetern				
Boiling point/Boiling range:	146 °C (2	94.8 °F)			
Flash point:	44 °C (11	1.2 °F)			
Flammability (solid, gaseous):	Not appli	cable.			
Auto igniting:	315 °C (5	99 °F)			
Decomposition temperature:	Not deter	mined.			
Ignition temperature:	Product is not selfigniting.				
Danger of explosion:	Product is not explosive. However, formation of explosive air/vapo mixtures are possible.				
Explosion limits:			<u> </u>		
Lower:	1.5 Vol %	ó			
Upper:	10.8 Vol :	%			
Vapor pressure at 20 °C (68 °F):	3.4 hPa (.	2.6 mm Hg)			
Density:		r informatio	n		
Vapor density	Not determined.				
Evaporation rate	Not deter	mined.			
Solubility in / Miscibility with					
Water:	Water miscible No				
Partition coefficient (n-octanol/wate	er): Not deter	mined.			
Viscosity:					
Dynamic:	Not determined.				
Kinematic:	Not determined.				
Other information	Name	Number	Sp. Grav.	VOC(%by wt.)	VOC(g/L)
	4.5 cPs	Y121022	1.01	75-80	790
	10 cPs	Y121042	1.02	70-75	750
	30 cPs	Y121043	1.06	60-65	680
	60 cPs	Y121045	1.07	50-55	570

10 Stability and reactivity

- · Reactivity No further relevant information available.
- Chemical stability Stable



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- · Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- · Possibility of hazardous reactions Exothermic polymerization.
- · Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight. Contact with incompatible materials.

- · Incompatible materials: Strong Oxidizing Agents, Strong Acids, Strong Bases
- · Hazardous decomposition products:

Carbon monoxide and carbon dioxide

Corrosive gases/vapors

Danger of toxic pyrolysis products.

11 Toxicological information

- · Information on toxicological effects
- · Acute toxicity:

· LD/LC50	· LD/LC50 values that are relevant for classification:				
Epoxy resi	Epoxy resin				
Oral	LD50	>2000 mg/kg (Rat)			
Dermal	LD50	>2000 mg/kg (rabbit)			
Inhalative	LC50	5 mg/L (Rat)			
108-65-6 1	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:
- on the skin: Irritant to skin and mucous membranes.
- · on the eye: Irritating effect.
- · Sensitization: Sensitization possible through skin contact.
- · Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations: Irritant

· Carcinogenic categories

· IARC (International	Agency f	or Research	h on C	'ancer)

None of the ingredients are listed.

· NTP (National Toxicology Program)

None of the ingredients are listed.

· OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.



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12 Ecological information

· Toxicity

1 oxicity	
· Aquatic toxicit	ty:
Epoxy resin	
100 <lc ec="" ic<="" th=""><th>$C[50] \leq 1000 \text{ mg/l (algae)}$</th></lc>	$C[50] \leq 1000 \text{ mg/l (algae)}$
	$\leq 1000 \text{ mg/l (fish)}$
	≤1000 mg/l (invertebrates)
71449-78-0 Su	lfonium, diphenyl[4-(phenylthio)phenyl]-, (OC-6-11)-hexafluoroantimonate(1-) (1:1)
EC50/17 h	>10000 mg/l (Pseudomonas putida)
EC50/48 h	>500 mg/l (daphnia magna)
EC50/72 h	>500 mg/l (scenedesmus subspicatus)
89452-37-9 Su	lfonium, (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)

- · Persistence and degradability No further relevant information available.
- · Behavior in environmental systems:
- · Bioaccumulative potential No further relevant information available.
- · Mobility in soil No further relevant information available.
- · Ecotoxical effects:
- · Remark: Harmful to fish
- · Additional ecological information:
- · General notes:

Water hazard class 1 (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

- · Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.
- · Other adverse effects No further relevant information available.

13 Disposal considerations

- · Waste treatment methods
- · Recommendation:

Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system. Disposal must be made in accordance with Federal, State, and Local regulations.

- · Uncleaned packagings:
- Recommendation: Disposal must be made in accordance with Federal, State, and Local regulations.

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4 Transport information	
· UN-Number · DOT, ADR, IMDG, IATA	UN1866
· UN proper shipping name · DOT, IMDG, IATA · ADR	RESIN SOLUTION 1866 RESIN SOLUTION
· Transport hazard class(es)	
· DOT	
PLANIMATE LIZER	
· Class	3 Flammable liquids
· Label	3
· Class	3 Flammable liquids
· Label	3
· Packing group · DOT, ADR, IMDG, IATA	III
· Environmental hazards: · Marine pollutant:	No
· Special precautions for user	Warning: Flammable liquids
· Hazard identification number (Kemler	
· EMS Number:	F-E, <u>S-E</u>
Transport in bulk according to Annex MARPOL73/78 and the IBC Code	II of Not applicable.
· UN "Model Regulation":	UN1866, RESIN SOLUTION, 3, III

15 Regulatory information

- · Safety, health and environmental regulations/legislation specific for the substance or mixture
- · Sara

Caption	355 (avtuam	alv hazardous	substances):

None of the ingredients are listed.

Section 313 (Specific toxic chemical listings):

89452-37-9 Sulfonium, (thiodi-4,1-phenylene) bis[diphenyl-,(OC-6-11)-hexafluoroantimonate (1-) (1:2) 71449-78-0 Sulfonium, diphenyl[4-(phenylthio)phenyl]-, (OC-6-11)-hexafluoroantimonate(1-) (1:1)

· TSCA (Toxic Substances Control Act): All ingredients are listed or comply with TSCA regulations.



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· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

None of the ingredients are listed.

· TLV (Threshold Limit Value)

None of the ingredients are listed.

NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

- · California SCAQMD Rule 443.1 VOC's: No information available.
- · GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- · Hazard pictograms





GHS02

GHS07

- · Signal word Warning
- · Hazard-determining components of labeling:

Epoxy resin

1-Methoxy-2-propanol acetate

 $Sulfonium,\ diphenyl[4-(phenylthio)phenyl]-,\ (OC-6-11)-hexafluoroantimonate (1-)\ (1:1)-hexafluoroantimonate (1-)\ (1:1)-hexafluo$

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

· Hazard statements

H226 Flammable liquid and vapor.

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/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapors/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.



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P304+P341 If inhaled: If breathing is difficult, remove person to fresh air and keep 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 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 In case of fire. Ose caroon atoxide to extinguish.

Store in a well-ventilated place. Keep cool.

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

regulations.

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

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.

- · 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.

- · Date of preparation / last revision 03/12/2024 / 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

DOT: US Department of Transportation

IATA: International Air Transport Association

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)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

 $PEL: Permissible\ Exposure\ Limit$

REL: Recommended Exposure Limit

Flammable Liquids 3: \hat{F} lammable liquids — Category 3

Acute Toxicity - Inhalation 4: Acute toxicity - Category 4

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation - Category 2A

Sensitization - Skin 1: Skin sensitisation – Category 1

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) - Category 3

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard - Category 1

Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard - Category 3

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