

Printing date 12.03.2024 Version number 9 (replaces version 8) Revision: 12.03.2024

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, 10cPs, 30cPs, 60cPs)
- · Article number: Y121022, 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
- · 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

The person responsible in EU Member State:

ONLY REPRESENTATIVE

Lionel Marcélis, PhD

President

REACH NATION SRL

22 Rue Notre Dame au Bois

1440 Braine-le-Château

BELGIUM

Tel: +32491880259

*Only Representative for 2-methoxy-1-methylethyl acetate (CAS 108-65-6) only. Other substances are being supported under REACH by Only Representatives of Non-European suppliers and others may be exempt from registration.

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.





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Acute Tox. 4 H332 Harmful if inhaled. Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

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.

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.
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.

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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:		
CAS: 108-65-6	1-Methoxy-2-propanol acetate	50-80%
EINECS: 203-603-9 Index number: 607-195-00-7	♠ Flam. Liq. 3, H226; ♠ STOT SE 3, H336	
Reg.nr.: 01-2119475791-29-0050		
	Epoxy resin	20-50%
	🕠 Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317	
CAS: 71449-78-0	Sulfonium, diphenyl[4-(phenylthio)phenyl]-, (OC-6-11)-	<1%
	hexafluoroantimonate(1-) (1:1)	
	Aquatic Acute 1, H400; Aquatic Chronic 1, H410; � Skin Sens. 1, H317	
CAS: 89452-37-9	Sulfonium, (thiodi-4,1-phenylene) bis[diphenyl-,(OC-6-11)-	<1%
	hexafluoroantimonate (1-) (1:2)	
	Aquatic Acute 1, H400; Aquatic Chronic 1, H410; 🗘 Skin Sens. 1, H317	

· Additional Components:

· 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.

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according to Regulation (EC) No 1907/2006, Article 31

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· 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
- · 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.

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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.

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

SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

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

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

IOELV Short-term value: 550 mg/m³, 100 ppm Long-term value: 275 mg/m³, 50 ppm

Skin

- Additional information: The lists valid during the making were used as basis.
- · 8.2 Exposure controls
- · Appropriate engineering controls No further data; see section 7.
- · 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.

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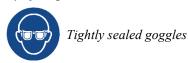
according to Regulation (EC) No 1907/2006, Article 31

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· Eye/face protection



· **Body protection:** Long-sleeved work clothes

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

Colour: Amber coloured
Odour: Ether-like
Odour threshold: Not determined.
Melting point/freezing point: Undetermined.

· Boiling point or initial boiling point

and boiling range 146 °C

· Flammability Not applicable.

· Lower and upper explosion limit

Lower: 1.5 Vol %
Upper: 10.8 Vol %
Flash point: 44 °C
Auto-ignition temperature: 315 °C

• Decomposition temperature: Not determined. • pH Not determined.

· Viscosity:

• Kinematic viscosity Not determined. • Dynamic: Not determined.

·Solubility

• water: Not miscible or difficult to mix.

· Partition coefficient n-octanol/water

(log value) Not determined.
• Vapour pressure at 20 °C: 3.4 hPa

Density and/or relative density

Density: See Other informationVapour density Not determined.

9.2 Other information Sp. Grav. Vol.(%by wt.) VOC(g/L) Name Number4.5 cPs Y121022 1.01 75-80 790 70-75 750 10 cPs *Y121042* 1.02 60-65 680 *30 cPs* Y121043 1.06 Y121045 1.07 50-55 570 60 cPs

· Appearance:

· Form: Liquid

Important information on protection of health and environment, and on safety.

• *Ignition temperature:* Product is not selfigniting.

• Explosive properties: Product is not explosive. However, formation of explosive air/vapour

mixtures are possible.

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according to Regulation (EC) No 1907/2006, Article 31

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Change in condition	No. 1	İ
· Evaporation rate	Not determined.	ì
Information with regard to physical		ì
hazard classes		ì
· Explosives	Void	ì
· Flammable gases	Void	ì
· Aerosols	Void	ì
· Oxidising gases	Void	ì
· Gases under pressure	Void	ì
· Flammable liquids	Flammable liquid and vapour.	ì
· Flammable solids	Void	ì
· Self-reactive substances and mixtures	Void	ì
· Pyrophoric liquids	Void	ì
· Pyrophoric solids	Void	ì
· Self-heating substances and mixtures	Void	ì
Substances and mixtures, which emit		ì
flammable gases in contact with water	Void	ì
Oxidising liquids	Void	ì
Oxidising solids	Void	ì
Organic peroxides	Void	ì
· Corrosive to metals	Void	ì
· Desensitised explosives	Void	ı

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

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

Harmful if inhaled.

· LD/LC50	· LD/LC50 values relevant for classification:	
Epoxy res	in	
Oral	LD50	>2000 mg/kg (Rat)
Dermal	LD50	>2000 mg/kg (rabbit)

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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)

· Skin corrosion/irritation

Causes skin irritation.

· Serious eye damage/irritation

Causes serious eye irritation.

· 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.
- · 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<="" th=""><th>$\leq 1000 \text{ mg/l (algae)}$</th></lc>	$ \leq 1000 \text{ mg/l (algae)} $
	$\leq 1000 \text{ mg/l (fish)}$
	≤1000 mg/l (invertebrates)
71449-78-0 Sulj	fonium, 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 Sulf	fonium, (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.
- · 12.5 Results of PBT and vPvB assessment
- · **PBT:** Not applicable.
- · vPvB: Not applicable.

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· 12.6 Endocrine disrupting properties

The product does not contain substances with endocrine disrupting properties.

- · 12.7 Other adverse 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

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.

14.1 UN number or ID number ADR, IMDG, IATA	UN1866	
14.2 UN proper shipping name ADR IMDG, IATA	1866 RESIN SOLUTION RESIN SOLUTION	
14.3 Transport hazard class(es) ADR, IMDG, IATA		
Class Label	3 Flammable liquids. 3	
14.4 Packing group ADR, IMDG, IATA	III	
14.5 Environmental hazards: Marine pollutant:	No	
14.6 Special precautions for user Hazard identification number (Kemler code): EMS Number:	Warning: Flammable liquids. 30 F-E, <u>S-E</u>	
14.7 Maritime transport in bulk according to IM instruments	10 Not applicable.	



according to Regulation (EC) No 1907/2006, Article 31

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· Transport/Additional information:

 $\cdot ADR$

Limited quantities (LQ)
 Transport category
 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.
- · 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.

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.

· 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)

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· 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

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