

Printing date 09/18/2019

Reviewed on 09/18/2019

## 1 Identification

- **Product identifier**
- **Trade name:** SU-8 TF 6000 Series Resists
- **Product number:** Y143015, Y143027, Y143037, Y143051, Y143061
- **Application of the substance / the mixture** Photoresist
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
 Kayaku Advanced Materials  
 200 Flanders Road  
 Westborough, MA 01581  
 Tel: (617) 965-5511  
 Fax: (617) 965-5818
- **Information department:**  
 Product Safety  
 Email: [productsafety@kayakuAM.com](mailto: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

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



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.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 1)

**· Hazard pictograms**


GHS02 GHS05 GHS07 GHS08

**· Signal word Danger**
**· Hazard-determining components of labeling:**

Proprietary Epoxy Resin

Cyclopentanone

gamma-Butyrolactone

**· Hazard statements**

H226 Flammable liquid and vapor.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H317 May cause an allergic skin reaction.

H336 May cause drowsiness or dizziness.

H373 May cause damage to organs through prolonged or repeated exposure.

**· Precautionary statements**

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

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

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 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 for extinction: Alcohol resistant foam.

P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.

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

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 = 3

Fire = 3

Reactivity = 0

**· HMIS-ratings (scale 0 - 4)**


Health = \*3

Fire = 3

Reactivity = 0

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

(Contd. on page 3)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

 · **vPvB:** Not applicable.

(Contd. of page 2)

### 3 Composition/information on ingredients

 · **Chemical characterization:** Mixtures

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

 · **Dangerous components:**

120-92-3	Cyclopentanone ⚠ Flam. Liq. 3, H226; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319	40-60%
108-65-6	1-Methoxy-2-propanol acetate ⚠ Flam. Liq. 3, H226; ⚠ STOT SE 3, H336	25-50%
	Proprietary Epoxy Resin ⚠ STOT RE 2, H373; ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; Aquatic Chronic 4, H413	4-25%
96-48-0	gamma-Butyrolactone ⚠ Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302; STOT SE 3, H336	5-15%
	Proprietary Photoacid Initiator ⚠ Aquatic Chronic 2, H411; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	<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; immediately call for medical help.

 · **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

Water

 · **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.

(Contd. on page 4)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name:** SU-8 TF 6000 Series Resists

(Contd. of page 3)

- **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 to enter sewers/ surface or ground water.  
Do not allow product to reach sewage system or any drains.  
Inform respective authorities in case of seepage into water course or sewage system.
- **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.  
Prevent formation of aerosols.  
Keep receptacles tightly sealed.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Use explosion-proof apparatus / fittings and spark-proof tools.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and containers:** Store in a cool location.
- **Information about storage in one common storage facility:**  
Do not store together with oxidizing and acidic materials.  
Do not store together with amines.
- **Further information about storage conditions:**  
Keep container well-sealed in cool, dry location.  
Store receptacle in a well ventilated area.  
Protect from heat and direct sunlight.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

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

(Contd. on page 5)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 4)

 · **Control parameters**

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

WEEL Long-term value: 50 ppm

 · **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 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

## 9 Physical and chemical properties

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

 · **General Information**

 · **Appearance:**

Form: Liquid

Color: Clear to light yellow

 · **Odor:** Sweet

 · **Odor threshold:** Not determined.

 · **pH-value:** Not determined.

 · **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 130 °C (266 130 °F)

 · **Flash point:** 30 °C (86 30 °F)

 · **Flammability (solid, gaseous):** Not applicable.

 · **Ignition temperature:** 315 °C (599 315 °F)

 · **Decomposition temperature:** Not determined.

(Contd. on page 6)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 5)

· <b>Auto igniting:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>Explosion limits:</b>	
<b>Lower:</b>	1.3 Vol %
<b>Upper:</b>	10.8 Vol %
· <b>Vapor pressure at 20 °C (6820 °F):</b>	11 hPa (8.3 11 mm Hg)
· <b>Density:</b>	See other information
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Partly miscible.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Solvent content:</b>	
<b>Solids content:</b>	10-70 %
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable
- **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 Bases, Strong Acids, Amines
- **Hazardous decomposition products:**  
Carbon monoxide and carbon dioxide  
Danger of toxic pyrolysis products.  
Corrosive gases/vapors

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

 · **LD/LC50 values that are relevant for classification:**
**Proprietary Epoxy Resin**

Oral	NOEL 28 day repeated dose	250 mg/kg/day (Rat)
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(Contd. on page 7)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 6)

**120-92-3 Cyclopentanone**

Oral	LD50	1820 mg/kg (Rat)
Dermal	LD50	>2000 mg/kg (rabbit)
Inhalative	LC50/4 h	19.5 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)

**108-65-6 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 for Research on Cancer)**

96-48-0 gamma-Butyrolactone

3

**· NTP (National Toxicology Program)**

None of the ingredients are listed.

**· OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients are listed.

**12 Ecological information**
**· Toxicity**
**· Aquatic toxicity:**
**Proprietary Epoxy Resin**

LC50/96 h	>0.31 mg/l (algae)
	>0.31 mg/l (Water flea)
NOEC/96 h	≥0.99 mg/l (algae)

**120-92-3 Cyclopentanone**

EC50/48 h	3600 mg/l (Ceriodaphnia dubia (water flea))
	100 mg/l (daphnia magna)
EC50/72 h	>100 mg/l (scenedesmus subspicatus)
LC50/48 hr	2950 mg/L (golden orfe)
LC50/96 h	>100 mg/l (fish)

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

ErC50 96 hour	>1000 mg/l (Pseudokirchneriella subcapitata (alga))
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(Contd. on page 8)



Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 7)


LC50	408-500 mg/l (daphnia magna) 100-180 mg/l (rainbow trout (Oncorhynchus mykiss))
<b>96-48-0 gamma-Butyrolactone</b>	
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)

- **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.
- **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.
- **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.

### 14 Transport information

· <b>UN-Number</b>	UN1866
· <b>DOT, ADR, IMDG, IATA</b>	
· <b>UN proper shipping name</b>	Resin solution
· <b>DOT, ADR</b>	RESIN SOLUTION
· <b>IMDG, IATA</b>	
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
	
· <b>Class</b>	3 Flammable liquids

(Contd. on page 9)




Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 8)

· <b>Label</b>	3
· <b>ADR, IMDG, IATA</b>	
	
· <b>Class</b>	3 Flammable liquids
· <b>Label</b>	3
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	III
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Warning: Flammable liquids
· <b>Danger code (Kemler):</b>	30
· <b>EMS Number:</b>	F-E, S-E
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>UN "Model Regulation":</b>	UN1866, Resin solution, 3, III

## 15 Regulatory information

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

 · **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

 · **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

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

 · **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 established by ACGIH)**

None of the ingredients are listed.

(Contd. on page 10)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 9)

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

None of the ingredients are listed.

 · **Massachusetts State Right To Know List**

120-92-3 Cyclopentanone

 · **New Jersey State Right To Know List**

120-92-3 Cyclopentanone

 · **Pennsylvania Hazardous Substances List**

120-92-3 Cyclopentanone

 · **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 GHS05 GHS07 GHS08

 · **Signal word** Danger

 · **Hazard-determining components of labeling:**

Proprietary Epoxy Resin

Cyclopentanone

gamma-Butyrolactone

 · **Hazard statements**

H226 Flammable liquid and vapor.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H317 May cause an allergic skin reaction.

H336 May cause drowsiness or dizziness.

H373 May cause damage to organs through prolonged or repeated exposure.

 · **Precautionary statements**

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

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

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 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 for extinction: Alcohol resistant foam.

P370+P378 In case of fire: Use for extinction: Fire-extinguishing powder.

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

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

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

(Contd. on page 11)

Printing date 09/18/2019

Reviewed on 09/18/2019

**Trade name: SU-8 TF 6000 Series Resists**

(Contd. of page 10)

 · **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)

### · **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** 09/18/2019 / 2

### · **Abbreviations and acronyms:**

ADR: Accord européen sur le transport 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

ACGIH: American Conference of Governmental Industrial Hygienists

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

Flam. Liq. 3: Flammable liquids – Category 3

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. 2A: Serious eye damage/eye irritation – Category 2A

Skin Sens. 1: Skin sensitisation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4