

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

1 Identification

- **Product identifier**
- **Trade name:** KMSF® 1000
- **Product number:** B110050
- **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**



GHS09 Environment

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



GHS07

Acute Toxicity - Oral 4 H302 Harmful if swallowed.

Skin Irritation 2 H315 Causes skin irritation.

Eye Irritation 2A H319 Causes serious eye irritation.

Flammable Liquids 4 H227 Combustible liquid.

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



GHS07



GHS09

- **Signal word** *Warning*
- **Hazard-determining components of labeling:**
 Proprietary Resin

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 1)

· Hazard statements

- H227 Combustible liquid.
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H411 Toxic 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+P312 If swallowed: Call a poison center/doctor if you feel unwell.
- 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.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P370+P378 In case of fire: Use to extinguish: Alcohol resistant foam, Fire-extinguishing powder, 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.

· Additional information:

- 44.8 % of the mixture consists of component(s) of unknown toxicity.

· Classification system:
· NFPA ratings (scale 0 - 4)

· HMIS-ratings (scale 0 - 4)

· Other hazards
· Results of PBT and vPvB assessment

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

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

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 2)

· Dangerous components:		
119-64-2	1,2,3,4-tetrahydronaphthalene ⚠ Aquatic Chronic 2, H411; ⚠ Skin Irritation 2, H315; Eye Irritation 2A, H319	40-60%
	Proprietary Resin ⚠ Acute Toxicity - Oral 4, H302; Acute Toxicity - Dermal 4, H312; Skin Irritation 2, H315	40-60%
	Proprietary Initiator ⚠ Acute Toxicity - Dermal 4, H312	1-5%
· Additional Components:		
Proprietary Initiator	⚠ Acute Toxicity - Oral 4, H302	<1%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

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; immediately call a doctor.

· **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

ABC powder

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

· **Special hazards arising from the substance or mixture** No further relevant information available.

· **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

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 3)

- **Environmental precautions:**
*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.*
- **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.*
- **Protective Action Criteria for Chemicals**

· PAC-1:

119-64-2	1,2,3,4-tetrahydronaphthalene	1.6 ppm
----------	-------------------------------	---------

· PAC-2:

119-64-2	1,2,3,4-tetrahydronaphthalene	17 ppm
----------	-------------------------------	--------

· PAC-3:

119-64-2	1,2,3,4-tetrahydronaphthalene	100 ppm
----------	-------------------------------	---------

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
*Ensure good ventilation/exhaust at the workplace.
 Open and handle container with care.
 Prevent formation of aerosols.*
- **Information about protection against explosions and fires:**
*Keep ignition sources away - Do not smoke.
 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.*
- **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:**
*Keep container well-sealed in cool, dry location.
 Protect from heat and direct sunlight.
 Store receptacle in a well ventilated area.*
- **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 section 7.*
- **Control parameters**
- **Components 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.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 4)

- **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

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

9 Physical and chemical properties

- | | |
|--|-------------------------------|
| · Information on basic physical and chemical properties | |
| · General Information | |
| · Appearance: | |
| Form: | Fluid |
| Color: | Clear to light yellow |
| Odor: | Strong |
| Odor threshold: | Not determined. |
| pH-value: | Not determined. |
| · Change in condition | |
| Melting point/Melting range: | Undetermined. |
| Boiling point/Boiling range: | 207 °C (404.6 °F) |
| Flash point: | 77 °C (170.6 °F) |
| Flammability (solid, gaseous): | Not applicable. |
| Auto igniting: | 425 °C (797 °F) |
| Decomposition temperature: | Not determined. |
| Ignition temperature: | Product is not selfigniting. |
| Danger of explosion: | May form explosive peroxides. |

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 5)

· Explosion limits:	
Lower:	0.8 Vol %
Upper:	5.0 Vol %
· Vapor pressure at 20 °C (68 °F):	0.3 hPa (0.2 mm Hg)
· Density at 20 °C (68 °F):	0.99356 g/cm ³ (8.29126 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	1.6-2.3 (BuAc=1)
· Solubility in / Miscibility with Water:	Water miscible No
· Partition coefficient (n-octanol/water): Not determined.	
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
VOC content:	40-60 %
· Other information	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** No dangerous reactions known.
- **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

11 Toxicological information

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

 · **LD/LC50 values that are relevant for classification:**
119-64-2 1,2,3,4-tetrahydronaphthalene

Oral	LD50	2860 mg/kg (Rat)
Dermal	LD50	17300 mg/kg (rabbit)
Inhalative	LC50	275 ppm (Guinea pig)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 6)

· **Additional toxicological information:**

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

Harmful

Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

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.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

119-64-2 1,2,3,4-tetrahydronaphthalene

LC50/96 h 3.2 mg/l (zebra fish)

EC50/48 h 7 mg/l (algae)

2.4 mg/l (daphnia magna)

· **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.

· **Ecotoxicological effects:**

· **Remark:** Toxic for fish

· **Additional ecological information:**

· **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Toxic for 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:**

Disposal must be made in accordance with Federal, State, and Local regulations.

Must not be disposed of as regular garbage/trash. Do not allow product to reach sewage system.

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023


Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 7)

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

14 Transport information

· UN-Number	UN3082
· DOT, ADR, IMDG, IATA	
· UN proper shipping name	Environmentally hazardous substances, liquid, n.o.s. (1,2,3,4-tetrahydronaphthalene)
· DOT, ADR	
· IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,2,3,4-tetrahydronaphthalene), MARINE POLLUTANT
· IATA	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,2,3,4-tetrahydronaphthalene)
· Transport hazard class(es)	
· DOT, ADR, IMDG, IATA	
	
· Class	9 Miscellaneous dangerous substances and articles
· Label	9
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards:	Product contains environmentally hazardous substances: 1,2,3,4-tetrahydronaphthalene
· Marine pollutant:	Yes (DOT)
· Special precautions for user	Warning: Miscellaneous dangerous substances and articles
· Hazard identification number (Kemler code):	90
· EMS Number:	F-A,S-F
· Stowage Category	A
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: No limit On cargo aircraft only: No limit
· ADR	
· Excepted quantities (EQ)	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

(Contd. on page 9)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 8)

<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
<ul style="list-style-type: none"> · UN "Model Regulation": 	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (1,2,3,4-TETRAHYDRONAPHTHALENE), 9, 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)**

None of the ingredients are listed.

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

None of the ingredients are listed.

- **Pennsylvania Hazardous Substances List**

119-64-2 | 1,2,3,4-tetrahydronaphthalene

- **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).

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 9)

· Hazard pictograms



GHS07 GHS09

· Signal word Warning

· Hazard-determining components of labeling:

Proprietary Resin

· Hazard statements

H227 Combustible liquid.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H411 Toxic 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+P312 If swallowed: Call a poison center/doctor if you feel unwell.

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.

P332+P313 If skin irritation occurs: Get medical advice/attention.

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

P370+P378 In case of fire: Use to extinguish: Alcohol resistant foam, Fire-extinguishing powder, 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.

· 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 05/10/2023

· Abbreviations and acronyms:

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

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/10/2023

Reviewed on 05/10/2023

Trade name: KMSF® 1000

(Contd. of page 10)

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)
VOC: Volatile Organic Compounds (USA, EU)
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 4: Flammable liquids – Category 4
Acute Toxicity - Oral 4: Acute toxicity – Category 4
Skin Irritation 2: Skin corrosion/irritation – Category 2
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

-US-