SAFETY DATA SHEET

PRODUCT NAME **KEM AQUA Solvent OIL**

Data of issue 6/11/2018

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1. Identification of the substance or mixture and the supplier

Product name	KEM AQUA Solvent OIL
SDS No.	GHS-0066E
Name of supplier	Kyoto Electronics Manufacturing Co., Ltd.
Address	68 Ninodan-cho, Shinden, Kisshoin, Minami-ku, Kyoto, Japan
Division	Quality Assurance Department
Phone	+81-75-691-4121
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Emergency phone	+81-75-691-4125

Recommended uses and restrictions on use

Recommended use	For analysis
Restrictions on use	When using for purposes other than those recommended, consult a specialist.

2. Hazard identification

GHS classification

Physical hazards	
Flammable liquids	Category 3
Health hazards	
Acute toxicity / Oral	Category 4
Skin corrosion / Irritation	Category 2
Serious eye damage / Eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3(Respiratory tract irritation, Narcotic effects)
Environmental hazards	
Short-term (acute) aquatic hazard	Category 3

GHS label elements

Hazard pictograms

Signal words Warning

Hazard statements	H226 Flammable liquid and vapor. H302 Harmful if swallowed. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness. H402 Harmful to aquatic life.
Precautionary statement	
Prevention	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P233 Keep container tightly closed. P240 Ground and bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use non-sparking tools. P243 Take action to prevent static discharges. P261 Avoid breathing mist or vapors. P264 Wash skin thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/ eye protection/ face protection.
Response	P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell. 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. P362 + P364 Take off contaminated clothing and wash it before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage	P403 + P233 Store in a well-ventilated place. Keep container tightly closed. P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.
Disposal	P501 Dispose of contents/ container to an approved waste disposal plant.

3. Composition/Information on ingredients

substance / mixture mixture

Components

No.	Chemical name	CAS No.	Concentration (% w/w)	ENCS / ISHL number
1	hexan-1-ol	111-27-3	65-75	2-217
2	ethanol	64-17-5	20-30	2-202
3	2-(methylamino)pyridine	4597-87-9	1-5	8-(1)-3318
4	sulfur Dioxide	7446-09-5	<1	1-536

4. First-aid measures

General advice	Move out of dangerous area. Consult a physician. Show this material safety data sheet to the doctor in attendance. Do not leave the victim unattended.
If inhaled	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
In case of skin contact	Wash off with soap and plenty of water. Wash contaminated clothing before reuse. Remove contaminated clothing and shoes. If skin irritation or rash occurs: Get medical advice/ attention.
In case of eye contact	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Protect unharmed eye.

	Keep eye wide open while rinsing.
	If eye irritation persists, consult a specialist.
	Remove contact lenses, if present and easy to do. Continue rinsing.
If swallowed	Rinse mouth.
	Do NOT induce vomiting.
	Take victim immediately to hospital.
Most important symptoms and effects, both acute and delayed	Harmful if swallowed.
	Causes skin irritation.
	Causes serious eye irritation.
	May cause respiratory irritation.
	May cause drowsiness or dizziness.
Notes to physician	Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	Carbon dioxide (CO_2)
	Dry sand
	Dry chemical
	Vermiculite
Unsuitable extinguishing media	High volume water jet
Specific hazards during fire fighting	Do not allow run-off from fire fighting to enter drains or water courses.
Specific extinguishing methods	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Use personal protective equipment.
	Ensure adequate ventilation.
	Remove all sources of ignition.
	Evacuate personnel to safe areas.
Environmental precautions	Prevent product from entering drains.
	Prevent further leakage or spillage if safe to do so.
	If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. Handling and storage

Handling

Advice on protection against fire and explosion	Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.
Advice on safe handling	Do not breathe vapors/dust. Avoid contact with skin and eyes. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Wash skin thoroughly after handling.
Avoidance of contact	No data available
Hygiene measures	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

Storage

Conditions for safe storage	Keep container tightly closed in a dry and well-ventilated place. Store at room temperature. To maintain product quality, do not store in heat or direct sunlight.
Further information on storage stability	No decomposition if stored and applied as directed.

8. Exposure controls/Personal protection

Threshold limit value and permissible exposure limits for each component in the work environment

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Reference concentration / Permissible concentration	Basis
ethanol	64-17-5	STEL	1,000 ppm	ACGIH
sulphur dioxide	7446-09-5	STEL	0.25 ppm	ACGIH

Personal protective equipment

Respiratory protection	Suitable respiratory equipment
Hand protection material	Protective gloves
Eye protection	Safety glasses
Skin and body protection	Protective suit

9. Physical and chemical properties

Physical state	Liquid.
Color	Light yellow, clear
Odor	pungent
Melting point / Freezing point	No data available
Initial boiling point and boiling range	No data available
Flammability (liquids)	No data available
Lower explosion limit and upper explosion limit / flammability limit	
Upper explosion limit / Upper flammability limit	No data available
Lower explosion limit / Lower flammability limit	No data available
Flash point	24.3 ℃ (Tag closed cup)
Decomposition temperature	No data available
pH	No data available
Autoignition temperature	No data available
Self-Accelerating decomposition temperature (SADT)	No data available
Viscosity	
Viscosity, kinematic	3.656 mm^2/s
Solubility(ies)	
Water solubility	No data available
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Vapor pressure	No data available
Density and / or relative density Relative density	0.809 (20 ℃)
Density	No data available
Relative vapor density	No data available
Particle characteristics Particle size	No data available

10. Stability and reactivity

Reactivity	No decomposition if stored and applied as directed.
Chemical stability	No decomposition if stored and applied as directed.

Possibility of hazardous reactions	No decomposition if stored and applied as directed.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	No data available
Hazardous decomposition products	No data available

11. Toxicological information

Acute toxicity	Harmful if swallowed.
Product	
Acute oral toxicity	The component/mixture is moderately toxic after single ingestion.
Acute inhalation toxicity	Acute toxicity estimate > 20000 ppm (Calculation method), Exposure time 4 h, Test atmosphere gas
hexan-1-ol	
Acute oral toxicity	LD50 (Rat) 720 mg/kg
Acute inhalation toxicity	LC0 (Rat) 5.4 mg/L，Exposure time 8 h, Test atmosphere vapor
Acute dermal toxicity	LD50 (Rabbit) 2,538 mg/kg
ethanol	
Acute oral toxicity	LD50 (Rat) 15,010mg/kg
Acute inhalation toxicity	LC50 (Rat) 124.7 mg/L，Exposure time 4 h, Test atmosphere vapor
Acute dermal toxicity	LDLo (Rabbit) 20,000 mg/kg
sulphur dioxide	
Acute inhalation toxicity	LC50 (Rat) 593 – 1319 ppm，Exposure time 4 h, Test atmosphere gas
Skin corrosion/irritation	Causes skin irritation.
Product	Skin irritation
	May cause skin irritation in susceptible persons.
hexan-1-ol	Skin irritation
2-(methylamino)pyridine	Skin irritation
Serious eye damage/eye irritation	Causes serious eye irritation.
Product	Causes serious eye irritation.
hexan-1-ol	Causes serious eye irritation.
ethanol	Causes serious eye irritation.
2-(methylamino)pyridine	Eye irritation.
sulphur dioxide	Causes serious eye irritation.
Respiratory or skin sensitization	
Skin sensitization	Not classified based on available information.
Respiratory sensitization	Not classified based on available information.
Germ cell mutagenicity	Not classified based on available information.
Carcinogenicity	Not classified based on available information.

Reproductive toxicity	Not classified based on available information.
STOT-single exposure	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.
hexan-1-ol	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.
ethanol	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.
sulphur dioxide	Target Organs Respiratory organs The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.
STOT-repeated exposure	Not classified based on available information.
sulphur dioxide	Target Organs Respiratory organs The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.
Aspiration toxicity	Not classified based on available information.
Remarks	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

12. Ecological information

Ecotoxicity	
product	
Acute aquatic toxicity	Harmful to aquatic life.
hexan-1-ol	
Toxicity to fish	LC50 (Pimephales promelas (fathead minnow)) 97.7 mg/L, Exposure time 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 201 mg/L, Exposure time 24 h
ethanol	
Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 13,000 mg/L, Exposure time 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 12,340 mg/L, Exposure time 48 h

Toxicity to algae/aquatic plants	EC50 (Lemna minor (duckweed)) 3,690 mg/L, End point Growth inhibition, Exposure time 7 Days NOEC (Lemna gibba (gibbous duckweed)) 280 mg/L, End point Growth inhibition, Exposure time 7 Days
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	NOEC (Ceriodaphnia dubia (Water flea)) 9.6 mg/L, End point Reproductive inhibition, Exposure time 10 Days
Persistence and degradability	
Biodegradability	
hexan-1-ol	rapidly biodegradable
ethanol	Biochemical oxygen demand rapidly biodegradable, Biodegradation 89 %,
Bioaccumulative potential	
Bioaccumulation	
hexan-1-ol	Partition coefficient: n-octanol/water log Pow = 2.03
ethanol	Partition coefficient: n-octanol/water log Pow = - 0.31
Mobility in soil	No data available
Hazardous to the ozone layer	Not applicable
Other adverse effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

13. Disposal considerations

Waste from residues	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

14. Transport information

International Regulations

IATA-DGR

UN / ID No.	UN2282
Proper shipping name	Hexanols（solution）
Class	3
Packing group	Ⅲ

Labels	Flammable Liquids
Packing instruction (cargo aircraft)	366
Packing instruction (passenger aircraft)	355

IMDG-Code

UN No.	UN2282
Proper shipping name	HEXANOLS（solution）
Class	3
Packing group	Ⅲ
Labels	3
EmS Code	F-E，S-D
Marine pollutant	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation: Please refer to the law and local regulations, etc. in each country

Special precautions for user: The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. Regulatory information

16. Other information

Citations/References

NITE-Gmiccs (National Institute of Technology and Evaluation)

NITE-CHRIP (National Institute of Technology and Evaluation)

Workplace Safety Site (Ministry of Health, Labor and Welfare)

SDS from various upstream manufacturers

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