

SAFETY DATA SHEET

PRODUCT NAME	KEM AQUA Anolyte AO	Data of issue	26/6/2012
		Date of revision/ Last confirmation	10/9/2024

1. Identification of the substance or mixture and the supplier

Product name	KEM AQUA Anolyte AO
SDS No.	GHS-0070E
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
Fax	+81-75-691-4127
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 2
Health hazards	
Acute toxicity / Oral	Category 4
Acute toxicity / Inhalation	Category 4
Skin corrosion / Irritation	Category 2
Serious eye damage / Eye irritation	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 1 (Systemic toxicity, Central nervous system, Visual organs, Kidney, Liver, Respiratory system, Cardiovascular system)
Specific target organ toxicity (repeated exposure)	Category 3 (Narcotic effects)
Specific target organ toxicity (repeated exposure)	Category 1 (Central nervous system, Visual organs, Kidney, Liver, Respiratory system)

Category 2(Thyroid gland)

Environmental hazards

Short-term (acute) aquatic hazard

Category 3

Long-term (chronic) aquatic hazard

Category 1

GHS label elements

Hazard pictograms



Signal words

Danger

Hazard statements

- H225 Highly flammable liquid and vapor.
- H302 + H332 Harmful if swallowed or if inhaled.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H336 May cause drowsiness or dizziness.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H360 May damage fertility or the unborn child.
- H370 Causes damage to organs (Systemic toxicity, Central nervous system, Visual organs, Kidney, Liver, respiratory system, Cardiovascular system).
- H371 May cause damage to organs (Respiratory organs).
- H372 Causes damage to organs (Central nervous system, Visual organs, Kidney, Liver, respiratory system) through prolonged or repeated exposure.
- H373 May cause damage to organs (Thyroid gland, respiratory tract system) through prolonged or repeated exposure.
- H402 Harmful to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- 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.
- P260 Do not breathe 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.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ 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 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
- P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P362 + P364 Take off contaminated clothing and wash it

In case of skin contact	<p>Wash off with soap and plenty of water.</p> <p>Wash contaminated clothing before re-use.</p> <p>Remove contaminated clothing and shoes.</p> <p>If skin irritation or rash occurs: Get medical advice/ attention.</p> <p>If skin irritation persists, call a physician.</p> <p>If on skin, rinse well with water.</p> <p>If on clothes, remove clothes.</p>
In case of eye contact	<p>In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</p> <p>Continue rinsing eyes during transport to hospital.</p> <p>Protect unharmed eye.</p> <p>Keep eye wide open while rinsing.</p> <p>Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>Take victim immediately to hospital.</p>
If swallowed	<p>Rinse mouth with water.</p> <p>Do NOT induce vomiting.</p> <p>If large quantities of this material are swallowed, call a physician immediately.</p>
Most important symptoms and effects, both acute and delayed	<p>Harmful if swallowed or if inhaled.</p> <p>Causes skin irritation.</p> <p>May cause an allergic skin reaction.</p> <p>Causes serious eye damage.</p> <p>May cause drowsiness or dizziness.</p> <p>Suspected of causing genetic defects.</p> <p>Suspected of causing cancer.</p> <p>May damage fertility or the unborn child.</p> <p>Causes damage to organs.</p> <p>Causes damage to organs through prolonged or repeated exposure.</p>
Notes to physician	<p>Treat symptomatically.</p>

5. Fire-fighting measures

Suitable extinguishing media	<p>Carbon dioxide (CO₂)</p> <p>Dry sand</p> <p>Regular foam</p> <p>Vermiculite</p>
Unsuitable extinguishing media	<p>High volume water jet</p>
Specific hazards during fire fighting	<p>Do not allow run-off from fire fighting to enter drains or water courses.</p>

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	Use personal protective equipment.

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 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	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling

Advice on protection against fire and explosion	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	Take precautionary measures against static discharges. Keep away from fire, sparks and heated surfaces. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only in area provided with appropriate exhaust ventilation.
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 in a well-ventilated place. Store at room temperature. To maintain product quality, do not store in heat or direct sunlight.
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Keep container tightly closed.

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	
chloroform	67-66-3	ACL	3 ppm	JP OEL ISHL	
		OEL-M	3 ppm 14.7 mg/m ³	JP OEL JSOH	
		Further information: Skin absorption, Group 2B: possibly carcinogenic to humans			
		TWA	10 ppm	ACGIH	
methanol	67-56-1	ACL	200 ppm	JP OEL ISHL	
		OEL-M	200 ppm 260 mg/m ³	JP OEL JSOH	
		Further information: Group 2: Substances presumed to cause reproductive toxicity in humans, Skin absorption			
		TWA	200 ppm	ACGIH	
		STEL	250 ppm	ACGIH	
sulphur dioxide	7446-09-5	STEL	0.25 ppm	ACGIH	
iodine	7553-56-2	OEL-M	0.1 ppm 1 mg/m ³	JP OEL JSOH	
		Further information: Skin sensitizing agent; Group 2 substances which probably induce allergic reactions in humans.			
			OEL-M	1 ppm 1 mg/m ³	JP OEL JSOH
		Further information: Skin sensitizing agent; Group 2 substances which probably induce allergic reactions in humans.			
		TWA(Inhalable fraction and vapor)	0.01 ppm	ACGIH	
		STEL(Vapor)	0.1 ppm	ACGIH	
		TWA(Inhalable fraction and vapor)	1 ppm	ACGIH	

		STEL(Vapor)	1 ppm	ACGIH
ethanol	64-17-5	STEL	1,000 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, transparent, red brown
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	16.8 °C (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	2.53 mm ² /s
Solubility(ies)	
Water solubility	completely soluble
Partition coefficient: n-octanol/water	No data available
Vapor pressure	No data available
Density and / or relative density Relative density	1.105 (20 °C)
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	Stable under normal conditions.
Possibility of hazardous reactions	No decomposition if stored and applied as directed.
Conditions to avoid	No data available
Incompatible materials	No data available
Hazardous decomposition products	No data available

11. Toxicological information

Acute toxicity Harmful if swallowed or if inhaled.

Product

Acute oral toxicity	Acute toxicity estimate 775.55 mg/kg (Calculation method)
Acute inhalation toxicity	Acute toxicity estimate 7,169 ppm (Calculation method), Exposure time 4 h, Test atmosphere gas
Acute dermal toxicity	Acute toxicity estimate >2,000 mg/kg (Calculation method)

methanol

Acute oral toxicity	LD50 1,400mg/kg
Acute inhalation toxicity	LC50 (Rat) 64,000ppm, Exposure time 4 h, Test atmosphere vapor LC50 (Rat) 145,000ppm, Exposure time 1 h, Test atmosphere dust / mist
Acute dermal toxicity	LDLo 393mg/kg

chloroform

Acute oral toxicity	LD50 (Rat) 440mg/kg
Acute inhalation toxicity	LC50 (Rat) 9,770ppm, Exposure time 4 h, Test atmosphere vapor Test atmosphere vapor
Acute dermal toxicity	LD0 (Rabbit) 3,980mg/kg

propane-1,2-diol

Acute oral toxicity	LD50 (Rat) 22,000mg/kg
Acute dermal toxicity	LD50 (Rat) 22,000mg/kg LD50 (Rabbit) 20,800mg/kg

N,N-dimethylpyridin-4-amine

Acute oral toxicity	LD50 (Rat) 250mg/kg The component/mixture is toxic after single ingestion.
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sulphur dioxide

Acute inhalation toxicity	LC50 (Rat) 593 - 1319ppm, Exposure time 4 h, Test atmosphere gas
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iodine

Acute oral toxicity	LD50 (Rat) 14,000mg/kg
Acute inhalation toxicity	LC50 (Rat) >4.588mg/L, Exposure time 4 h, Test atmosphere dust / mist LCLo (Rat) 800mg/m ³ , Exposure time 1h, Test atmosphere vapor

Acute dermal toxicity	LD50 (Rabbit) 1,450 mg/kg
ethanol	
Acute oral toxicity	LD50 (Rat) 15,010mg/kg
Acute inhalation toxicity	LC50 (Rat) 124.7mg/L, Exposure time 4 h, Test atmosphere vapor
Acute dermal toxicity	LDLo (Rabbit) 20,000mg/kg
Skin corrosion/irritation	Causes skin irritation.
Product	Extremely corrosive and destructive to tissue.
chloroform	Skin irritation
iodine	Skin irritation
Serious eye damage/eye irritation	Causes serious eye damage.
Product	May cause irreversible eye damage.
methanol	Causes eye irritation.
chloroform	Causes serious eye irritation.
sulphur dioxide	Causes serious eye irritation.
iodine	Causes serious eye irritation.
ethanol	Causes serious eye irritation.
Respiratory or skin sensitization	
Skin sensitization	May cause an allergic skin reaction.
Respiratory sensitization	Not classified based on available information.
Product	Causes sensitization.
iodine	Probability or evidence of skin sensitization in humans
Germ cell mutagenicity	Suspected of causing genetic defects.
chloroform	Suspected of inducing heritable mutations in the germ cells of humans.
Carcinogenicity	Suspected of causing cancer.
chloroform	Suspected human carcinogens
Reproductive toxicity	May damage fertility or the unborn child.
methanol	Presumed human reproductive toxicant
chloroform	Suspected human reproductive toxicant
iodine	Suspected human reproductive toxicant
STOT-single exposure	May cause drowsiness or dizziness. Causes damage to organs (Systemic toxicity, Central nervous system, Visual organs, Kidney, Liver, respiratory system, Cardiovascular system).
	May cause damage to organs (Respiratory organs).
methanol	Target Organs Systemic toxicity, Central nervous system, Visual organs
	The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.
	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

chloroform	<p>Target Organs Liver, Respiratory organs, Kidney, Cardio-vascular system</p> <p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.</p> <p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.</p>
propane-1,2-diol	<p>Target Organs Systemic toxicity, Central nervous system</p> <p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.</p> <p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.</p>
sulphur dioxide	<p>Target Organs Respiratory organs</p> <p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.</p>
iodine	<p>Target Organs Respiratory organs</p> <p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.</p>
ethanol	<p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.</p> <p>The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.</p>
STOT-repeated exposure	<p>Causes damage to organs (Central nervous system, Visual organs, Kidney, Liver, respiratory system) through prolonged or repeated exposure. May cause damage to organs (Thyroid gland, respiratory tract system) through prolonged or repeated exposure.</p>
methanol	<p>Target Organs Central nervous system, Visual organs</p> <p>The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.</p>
chloroform	<p>Target Organs Liver, Respiratory organs, Kidney, Central nervous system</p> <p>The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.</p>
sulphur dioxide	<p>Target Organs Respiratory organs</p> <p>The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.</p>
iodine	<p>Target Organs Thyroid</p> <p>The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.</p>
Aspiration toxicity	<p>Not classified based on available information.</p>
Remarks	<p>Symptoms of overexposure may be headache, dizziness, tiredness,</p>

nausea and vomiting.

Concentrations substantially above the TLV value may cause narcotic effects.

Solvents may degrease the skin.

12. Ecological information

Ecotoxicity

methanol

Toxicity to fish LC50 (Lepomis macrochirus (Bluegill sunfish)) 15,400 mg/L, Exposure time 96 h

Toxicity to daphnia and other aquatic invertebrates EC50 (Daphnia magna (Water flea)) > 10,000 mg/L, Exposure time 48 h

Toxicity to algae/aquatic plants EC50 (Chaetoceros calcitrans) > 10,000 - < 20,000 mg/L, Exposure time 96 h
 NOEC (Skeletonema costatum (marine diatom)) 1,400mg/L, End point Growth inhibition, Exposure time 96 h

Toxicity to fish (Chronic toxicity) NOEC (Oreochromis mossambicus) 23.75 mg/L, End point Growth inhibition
 Exposure time 90 Days

chloroform

Toxicity to algae/aquatic plants EC50 (Chlamydomonas reinhardtii (green algae)) 13.3 mg/L, Exposure time 72 h

Toxicity to fish (Chronic toxicity) NOEC (Oncorhynchus mykiss (rainbow trout)) 0.059 mg/L, Exposure time 28 Days

M-Factor (Chronic aquatic toxicity) 1

propane-1,2-diol

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)) 51,600 mg/L, Exposure time 96 h
 (OECD Test Guideline 203), GLP yes

Toxicity to daphnia and other aquatic invertebrates EC50 (Daphnia magna (Water flea)) 43,500 mg/L, End point immobilization,
 Exposure time 96 h (OECD Test Guideline 203), GLP yes

Toxicity to algae/aquatic plants EC50 (Skeletonema costatum (marine diatom)) 19,100 mg/L, End point Growth inhibition,
 Exposure time 96 h (OECD Test Guideline 201), GLP yes

Toxicity to fish (Chronic toxicity) NOEC (Oryzias latipes (Japanese medaka)) 100 mg/L, End point mortality,
 Exposure time 21 Days (OECD Test Guideline 204), GLP yes

Toxicity to daphnia and other aquatic invertebrates NOEC (Daphnia magna (Water flea)) 1,000 mg/L, End point Reproductive inhibition,
 Exposure time 21 Days (OECD Test Guideline 211), GLP yes

(Chronic toxicity)

iodine

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)) 0.53 mg/L, Exposure time 96 h

Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 0.16 mg/L, Exposure time 48 h
M-Factor (Acute aquatic toxicity)	1
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, End point mortality, 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 fish (Chronic toxicity)	NOEC (Ceriodaphnia dubia (Water flea)) 9.6 mg/L, End point Reproductive inhibition, Exposure time 10 Days
Persistence and degradability	
methanol	Biochemical oxygen demand rapidly biodegradable, Biodegradation 92 %, Exposure time 14 d
chloroform	Biochemical oxygen demand Not rapidly biodegradable, Biodegradation 0 %, Exposure time 14 d
propane-1,2-diol	Inoculum: activated sludge, Concentration: 100 parts per million Biochemical oxygen demand rapidly biodegradable, Biodegradation 90 %, Exposure time 4 Weeks
ethanol	Biochemical oxygen demand rapidly biodegradable, Biodegradation 89 %
Bioaccumulative potential	
methanol	Species Cyprinus carpio (Carp), Bioconcentration factor (BCF) < 10, Exposure time: 72 h Partition coefficient: n-octanol/water log Pow = - 0.77
chloroform	Partition coefficient: n-octanol/water log Pow = 1.97
propane-1,2-diol	Partition coefficient: n-octanol/water log Pow = - 0.92
N,N-dimethylpyridin-4-amine	Partition coefficient: n-octanol/water log Pow = 1.34
iodine	Partition coefficient: n-octanol/water log Pow = - 2.49
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. Very toxic to aquatic life with long lasting effects.

13. Disposal considerations

Waste from residues	Can be incinerated, when in compliance with local regulations. 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.	UN1993
Proper shipping name	Flammable liquid, n.o.s. (Methanol, solution)
Class	3
Packing group	II
Labels	Flammable Liquids
Packing instruction (cargo aircraft)	364
Packing instruction (passenger aircraft)	353

IMDG-Code

UN No.	UN1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S. (Methanol, solution)
Class	3
Packing group	II
Labels	3
EmS Code	F-E, S-E
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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.