

SAFETY DATA SHEET

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| PRODUCT NAME KEM AQUA Solvent SA | Data of issue 6/11/2018 Date of revision 2/4/2024 (Confirmation) |
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1. Identification of the substance or mixture and the supplier

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|--|---|
| Product name | KEM AQUA Solvent SA |
| SDS No. | GHS-0069E |
| 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 |
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Health hazards

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| Serious eye damage / Eye irritation | Category 2B |
| Reproductive toxicity | Category 1B |
| Specific target organ toxicity (single exposure) | Category 1(Central nervous system, Visual organs, Systemic toxicity) Category 3(Narcotic effects) |
| Specific target organ toxicity (repeated exposure) | Category 1(Central nervous system, Visual organs) |

GHS label elements

Hazard pictograms



Signal words

Danger

Hazard statements

H225 Highly flammable liquid and vapor.
H320 Causes eye irritation.
H336 May cause drowsiness or dizziness.
H360 May damage fertility or the unborn child.
H370 Causes damage to organs (respiratory organ).
H372 Causes damage to organs (thyroid gland) through prolonged or repeated exposure.

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.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

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.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P337 + P313 If eye irritation persists: Get medical advice/

Causes damage to organs.
 Causes damage to organs through prolonged or repeated exposure.

Notes to physician Treat symptomatically.

5. Fire-fighting measures

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| Suitable extinguishing media | Carbon dioxide (CO2) Dry sand Regular foam 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 | Use personal protective equipment. |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures | Use personal protective equipment. Remove all sources of ignition. |
| 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

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| 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). Use only explosion-proof equipment. |

Keep away from open flames, hot surfaces and sources of ignition.

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| Advice on safe handling | <p>Take precautionary measures against static discharges.</p> <p>Keep away from fire, sparks and heated surfaces.</p> <p>Wash skin thoroughly after handling.</p> <p>Do not eat, drink or smoke when using this product.</p> <p>Use only in area provided with appropriate exhaust ventilation.</p> |
| Avoidance of contact | No data available |
| Hygiene measures | <p>When using do not eat or drink.</p> <p>When using do not smoke.</p> <p>Wash hands before breaks and at the end of workday.</p> |

Storage

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| Conditions for safe storage | <p>Keep in a well-ventilated place.</p> <p>Store at room temperature.</p> <p>To maintain product quality, do not store in heat or direct sunlight.</p> <p>Keep container tightly closed.</p> |
| 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 |
|------------|---------|---|--|-------------|
| formamide | 75-12-7 | TWA | 1pm | ACGIH |
| methanol | 67-56-1 | ACL | 200ppm | JP OEL ISHL |
| | | OEL-M | 200ppm | JP OEL JSOH |
| | | Further information: Group 2: Substances presumed to cause reproductive toxicity in humans, Skin absorption | | |
| | | TWA | 200ppm | ACGIH |
| | | STEL | 250ppm | ACGIH |

Personal protective equipment

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|--------------------------|--------------------------------|
| 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

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| Physical state | Liquid. |
| Color | colorless, light yellow, transparent |
| 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 | 19.4°C |
| Self-ignition | No data available |
| 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 | 1.96mm ² /s |
| Solubility(ies) | |
| Water solubility | completely soluble |
| 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 | 1.024 (20°C) |
| Density | No data available |
| Relative vapor density | No data available |
| Particle characteristics Particle size | No data available |

10. Stability and reactivity

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|------------------------------------|---|
| 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

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| Acute toxicity | Not classified based on available information. |
| Product | |
| Acute oral toxicity | Acute toxicity estimate 2, 000 mg/kg (Calculation method) |
| formamidel | |
| Acute oral toxicity | LD50 (Rat) 3,200mg/kg |
| Acute inhalation toxicity | LC50 (Rat) 21mg/L, Exposure time 4 h, Test atmosphere dust / mist |
| Acute dermal toxicity | LD50 (Rat) 3,000mg/kg |
| 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 |
| Skin corrosion/irritation | Not classified based on available information. |
| Product | May cause skin irritation in susceptible persons. |
| Serious eye damage/eye irritation | Causes eye irritation. |
| Product | Vapors may cause irritation to the eyes, respiratory system and the skin. |
| formamide | Causes eye irritation. |
| methanol | Causes 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 | May damage fertility or the unborn child. |
| formamide | Presumed human reproductive toxicant |
| methanol | Presumed human reproductive toxicant |
| STOT-single exposure | May cause drowsiness or dizziness. Causes damage to organs (Central nervous system, Visual organs, Systemic toxicity). |
| 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 |

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| | exposure, category 3 with narcotic effects. |
| STOT-repeated exposure | Causes damage to organs (Central nervous system, Visual organs) through prolonged or repeated exposure. |
| methanol | Target Organs Central nervous system, Visual 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

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| Ecotoxicity | |
| formamide | |
| Toxicity to fish | LC50 (<i>Oryzias latipes</i> (Japanese medaka)) >100 mg/L, Exposure time 96 h |
| Toxicity to daphnia and other aquatic invertebrates | EC50 (<i>Daphnia magna</i> (Water flea)) > 500 mg/L, Exposure time 48 h |
| Toxicity to algae/aquatic plants | EC50 (<i>Pseudokirchneriella subcapitata</i> (green algae)) > 1,000 mg/L, Exposure time 72 h NOEC (<i>Pseudokirchneriella subcapitata</i> (green algae)) >10 mg/L, Exposure time 72 h |
| methanol | |
| Toxicity to fish | LC50 (<i>Lepomis macrochirus</i> (Bluegill sunfish)) 15,400 mg/L, Exposure time 96 h |
| Toxicity to daphnia and other aquatic invertebrates | EC50 (<i>Daphnia magna</i> (Water flea)) > 10,000 mg/L, Exposure time 48 h |
| Toxicity to algae/aquatic plants | EC50 (<i>Chaetoceros calcitrans</i>) > 10,000 - < 20,000 mg/L, Exposure time 96 h |
| Toxicity to fish (Chronic toxicity) | NOEC (<i>Oreochromis mossambicus</i>) 23.75 mg/L, End point Growth inhibition Exposure time 90 Days |
| Persistence and degradability | |
| Biodegradability | |
| formamide | rapidly biodegradable, Biodegradation 99 %, Exposure time 28 d (IECD Test Guideline 301A) |
| methanol | Biochemical oxygen demand rapidly biodegradable, Biodegradation 92 %, Exposure time 14 d |

Bioaccumulative potential

Bioaccumulation

methanol Species Cyprinus carpio (Carp), Bioconcentration factor (BCF) < 10, Exposure time:
72 h

Partition coefficient: n-octanol/water log Pow = - 0.77

Mobility in soil No data available

Hazardous to the ozone Not applicable

layer

Other adverse effects No data available

13. Disposal considerations

aste from residues Can be incinerated, when in compliance with local regulations.

Send to a licensed waste management company.

Contaminated Empty remaining contents.

packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

Dispose of contents/ container to an approved waste disposal plant.

14. Transport information

International Regulations

IATA-DGR

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|--|--------------------------|
| UN / ID No. | UN1230 |
| Proper shipping name | Methanol (solution) |
| Class | 3 |
| Subsidiary risk | 6.1 |
| Packing group | II |
| Labels | Flammable Liquids, Toxic |
| Packing instruction (cargo aircraft) | 364 |
| Packing instruction (passenger aircraft) | 352 |

IMDG-Code

| | |
|----------------------|---------------------|
| UN No. | UN1230 |
| Proper shipping name | METHANOL (solution) |
| Class | 3 |
| Subsidiary risk | 6.1 |
| Packing group | II |
| Labels | 3 (6.1) |

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

Full text of other abbreviations

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| ACGIH | USA. ACGIH Threshold Limit Values (TLV) |
| JP OEL ISHL | Japan. Administrative Control Levels |
| JP OEL JSOH | Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits |
| ACGIH/TWA | 8-hour, time-weighted average |
| ACGIH/STEL | Short-term exposure limit |
| JP OEL ISHL / ACL | Administrative Control level |
| JP OEL JSOH / OEL-M | Occupational Exposure Limit-Mean |

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal

Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System.

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.