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# Safety Data Sheet

## Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Glutaraldehyde solution, 25% in water

SDS No. : 3437E-4

Relevant identified uses of the substance or mixture and uses advised against

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

## Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Acute toxicity (Dermal): Category 4

Acute toxicity (Inhalation): Category 1

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Respiratory sensitization: Category 1

Skin sensitization: Category 1

Specific target organ toxicity - single exposure: Category 1 (respiratory system)

Specific target organ toxicity - repeated exposure: Category 1 (respiratory system)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 1

Hazardous to the aquatic environment, long-term (chronic): Category 2

(Note) GHS classification without description: Not classified/Classification not possible

Label elements

Signal word: Danger

HAZARD STATEMENT

H302 Harmful if swallowed

H312 Harmful in contact with skin

H330 Fatal if inhaled

H314 Causes severe skin burns and eye damage

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

H317 May cause an allergic skin reaction

H370 Causes damage to organs (respiratory system)

H372 Causes damage to organs through prolonged or repeated exposure (respiratory system)

H400 Very toxic to aquatic life
H411 Toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

P273 Avoid release to the environment.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P284 In case of inadequate ventilation wear respiratory protection.
P271 Use only outdoors or in a well-ventilated area.
P264 Wash contaminated parts thoroughly after handling.
P280 Wear protective gloves or protective clothing.
P280 Wear protective gloves.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing or face protection.
P280 Wear eye protection/face protection.
P270 Do not eat, drink or smoke when using this product.

Response

P391 Collect spillage.
P314 Get medical advice/attention if you feel unwell.
P310 Immediately call a POISON CENTER/doctor/physician.
P312 Call a POISON CENTER/doctor/physician if you feel unwell.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor/physician.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before reuse.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P330 IF SWALLOWED: Rinse mouth.
P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

Specific adverse human health effects

See "11. Toxicological Information".

## Section 3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

| Ingredient name | Content (%) | CAS No. | Chemicals No, Japan | Chemical formula |
|---|---|---|---|---|
| Glutaraldehyde | 25 | 111-30-8 | 2-509 | C5H8O2 |
| Water | 75 | 7732-18-5 | - | H2O |

Note : The figures shown above are not the specifications of the product. The content of products may exceed the figures shown above.

Impurities

Methanol ≦0.26% (CAS No.67-56-1)

## Section 4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physician.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Do NOT induce vomiting.

Call a POISON CENTER/doctor/physician if you feel unwell.

## Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.
Wear protective gloves/protective clothing/eye protection/face protection.
Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

## Section 6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.
Ventilate area until material pick up is complete.
Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.

## Section 7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.
Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
Wash hands et al thoroughly after handling.
When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity".

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should not be allowed out of the workplace.
Take off contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.
Store locked up. (P405)
Chilled storage.
Storage in accordance with local/national regulation.

Container and packaging materials for safe handling

Use closed unbreakable containers.

## Section 8. Exposure controls/personal protection

Control parameters

Control value and Concentration standard value

(Glutaraldehyde)
Concentration standard value STEL: C 0.03ppm
(Methanol)
Japan control value 200ppm

Adopted value

(Glutaraldehyde)
JSOH(2006) (ceiling) 0.03ppm
(Methanol)
JSOH(1963) 200ppm; 260mg/m3
(Glutaraldehyde)
ACGIH(2015) STEL: C 0.05ppm (URT, skin & eye irr; CNS impair)
(Methanol)
ACGIH(2009) TWA: 200ppm;
STEL: 250ppm (Headache; eye dam; dizziness; nausea)

[ACGIH] Notation

(Glutaraldehyde)
DSEN; RSEN
(Methanol)
Skin

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.

Individual protection measures

Recommend to use protective equipment in conformity with the standards.
Use appropriate protective equipment in accordance with local/national regulation.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.

## Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid
Color: Colorless to pale yellow, Clear
Odor: Characteristic odor
Melting point/Freezing point data is not available.
Boiling point or initial boiling point data is not available.
Boiling range data is not available.
Flammability (gases, liquids and solids) data is not available.
Lower and upper explosion limit/flammability limit data is not available.
Flash point data is not available.
Auto-ignition temperature data is not available.
Decomposition temperature data is not available.
pH data is not available.
Kinematic viscosity data is not available.
Solubility:
Solubility in water: Soluble
Solubility in solvent data is not available.
n-Octanol/water partition coefficient data is not available.
Vapor pressure data is not available.
Density and/or relative density: 1.06-1.07
Relative vapor density (Air=1) data is not available.
Particle characteristics data is not available.

Other information

Other information is not available.

## Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(Glutaraldehyde)
The substance is a strong reducing agent. It reacts with strong bases, strong acids and strong oxidants. This generates fire and explosion hazard. (ICSC 0352)

Conditions to avoid

Contact with incompatible materials.
Contact with fire source.

Incompatible materials

Strong acids, Strong bases, Strong oxidizing agents

Hazardous decomposition products

Carbon oxides

## Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Product]
Category 4, Harmful if swallowed
[Data for components of the product]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
female rat LD50=77mg/kg (OECD TG 401, GLP) (CLH Report, 2013)
(Methanol)
human LD50=ca. 1400mg/kg (DFGOT vol.16, 2001)

Acute toxicity (Dermal)
[Product]
Category 4, Harmful in contact with skin
[Data for components of the product]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
rabbit LD50=403mg/kg (MOE Result of the initial environmental risk assessment of chemicals, 2017)
(Methanol)
rabbit LD50=15800mg/kg (DFGOT vol.16, 2001)

Acute toxicity (Inhalation)
[Product]
Category 1, Fatal if inhaled
[Data for components of the product]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
vapor: male rat LC50=23.5ppm/4hr (OECD TG 403, GLP) (AICIS IMAP, 1994)
(Methanol)
vapor: rat LC50>31500ppm/4hr (DFGOT vol.16, 2001)

Irritant properties

Skin corrosion/irritation
[Product]
Category 1, Causes severe skin burns and eye damage
[Data for components of the product]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
rabbit(OECD TG 404, GLP)necrosis and peeling(ECHA RAC Opinion, 2014)

Serious eye damage/irritation
[Product]
Category 1, Causes serious eye damage
[Data for components of the product]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
rabbit(GLP, 45%solution)cornea opacity and conjunctival swelling, not recovered after 21 days(ECHA RAC Opinion, 2014)
(Methanol)
rabbit category 2 : Draize test (EHC 196, 1997)

Sensitization

Respiratory sensitization
[Product]
Category 1, May cause allergy or asthma symptoms or breathing difficulties if inhaled
[Data for components of the product]

[GHS Cat. Japan, base data]
(Glutaraldehyde)
cat. 1A; MHLW Risk Assessment Report, 2015; ECHA RAC Opinion, 2014 et al.

Skin sensitization

[Product]
Category 1, May cause an allergic skin reaction

[Data for components of the product]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
cat. 1A; MHLW Risk Assessment Report, 2015; ECHA RAC Opinion, 2014 et al.

Mutagenic effects data is not available.

Carcinogenicity

[Data for components of the product]
[ACGIH]
(Glutaraldehyde)
A4(2015) : Not Classifiable as a Human Carcinogen

Reproductive toxicity

[Data for components of the product]
[GHS Cat. Japan, base data]
(Methanol)
cat. 1B; mouse : PATTY 5th, 2001

Specific target organ toxicity (STOT)

STOT-single exposure

[Product]
Category 1, Causes damage to organs

[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
respiratory system (CLH Report, 2013 et al.)
[cat.3 (narcotic effects)]
[GHS Cat. Japan, base data]
(Methanol)
narcotic effect (PATTY 5th, 2001)

STOT-repeated exposure

[Product]
Category 1, Causes damage to organs through prolonged or repeated exposure

[Data for components of the product]
[cat.1]
[GHS Cat. Japan, base data]
(Glutaraldehyde)
respiratory system (MHLW Risk Assessment Report, 2015)

Aspiration hazard data is not available.

## Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]
Category 1, Very toxic to aquatic life

Category 2, Toxic to aquatic life with long lasting effects
[Data for components of the product]
Hazardous to the aquatic environment, short-term (acute)
[GHS Cat. Japan, base data]
(Glutaraldehyde)
Crustacea (Acartia tonsa) LC50=0.07mg/L/48hr (EU CLP CLH, 2013)
(Methanol)
Crustacea (Brine shrimp) LC50=900.73mg/L/24hr (EHC196, 1998)
Hazardous to the aquatic environment, long-term (chronic)
[GHS Cat. Japan, base data]
(Glutaraldehyde)
Algae (Desmodesmus subspicatus) NOErC=0.025mg/L/72hr (EU CLP CLH, 2013)

Water solubility
(Glutaraldehyde)
miscible (ICSC, 2000)
(Methanol)
100 g/100 ml (PHYSPROP_DB, 2009)

Persistence and degradability
[Data for components of the product]
(Glutaraldehyde)
Rapidly degradable (BOD_Degradation : 59%/28 days; TOC_Degradation : 86%/28 days; GC_Degradation : 100%/28 days (METI Existing Chemical Substances Safety Inspections Data, 1995))

Bioaccumulative potential
[Data for components of the product]
(Glutaraldehyde)
log Pow=-0.18 (PHYSPROP DB, 2005)
(Methanol)
log Pow=-0.82/-0.66 (ICSC, 2000)

Mobility in soil
Mobility in soil data is not available.

Other adverse effects
Ozone depleting chemical data is not available.

## Section 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods
Avoid release to the environment.
Dispose of contents/container as industrial waste. Accordance with local/national regulation.

## Section 14. Transport Information

UN Number or ID Number : 3390
UN Proper Shipping Name :
TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC50 lower than or equal to 1000 ml/m3 and saturated vapour concentration greater than or equal to 10 LC50
Class or division (Transport hazard class) : 6.1

Subsidiary hazard(s) : 8
Packing group : I
ERG GUIDE No.: 154

IMDG Code (International Maritime Dangerous Goods Regulations)
UN Number or ID Number : 3390
UN Proper Shipping Name :
TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC50 lower than or equal to 1000 ml/m3 and saturated vapour concentration greater than or equal to 10 LC50
Class or division (Transport hazard class) : 6.1
Subsidiary hazard(s) : 8
Packing group : I

IATA (Dangerous Goods Regulations)
UN Number or ID Number : 3390
UN Proper Shipping Name :
TOXIC BY INHALATION LIQUID, CORROSIVE, N.O.S. with an LC50 lower than or equal to 1000 ml/m3 and saturated vapour concentration greater than or equal to 10 LC50
Class or division (Transport hazard class) : 6.1
Subsidiary hazard(s) : 8
Packing group : I
FORBIDDEN

Environmental hazards
Marine pollutants (yes/no) : yes

## Section 15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
U.S. Toxic Substances Control Act (TSCA) Inventory
Chemicals listed in TSCA Inventory
Methanol; Glutaraldehyde; Water

Other regulatory information
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

## Section 16. Other information

References and sources for data
Globally Harmonized System of classification and labelling of chemicals, UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN
IMDG Code, 2022 Edition (Incorporating Amendment 41-22)
IATA Dangerous Goods Regulations (65th Edition) 2024
2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2024 TLVs and BEIs. (ACGIH)
JIS Z 7252 : 2019
JIS Z 7253 : 2019
2023 Recommendation on TLVs (JSOH)
Supplier's data/information

General Disclaimer

All chemicals have unknown hazard. Handle the product with care.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.
The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.
The GHS classification data given here is based on current Japan official data (NITE published in 2022).