

## SAFETY DATA SHEET

Version 6.12  
Revision Date 2024.11.05  
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Date of first issue 2019.01.14  
Product Number Sigma-Aldrich - 340855

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- a. Product name : Glutaraldehyde solution
- Product Number : 340855
- Brand : Sigma-Aldrich
- b. Recommended use of the chemical and restrictions on use : **Identified uses**  
Laboratory chemicals, For research use only.
- c. Company : 씨그마알드리치코리아(유)  
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금요일 (공휴일 제외)

**SECTION 2: Hazards identification****a. GHS Classification**

Acute toxicity, Oral (Category 4)  
Acute toxicity, Inhalation (Category 3)  
Skin corrosion/irritation (Category 1B)  
Serious eye damage/eye irritation (Category 1)  
Respiratory sensitization (Category 1)  
Skin sensitization (Category 1)  
Specific target organ toxicity - single exposure (Category 3), respiratory tract irritation  
Short-term (acute) aquatic hazard (Category 1)  
Long-term (chronic) aquatic hazard (Category 2)

**b. GHS-Labeling**

Pictogram



Signal Word	Danger
Hazard Statements	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
Precautionary Statements	
Prevention	
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.
P284	Wear respiratory protection.
Response	
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
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.
P321	Specific Treatment (See SDS section 4).
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.
Storage	
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
Disposal	
P501	Dispose of contents/ container according to waste-related laws

**c. Other hazards which do not result in classification**

Corrosive to the respiratory tract.

## SECTION 3: Composition/information on ingredients

### 3b Mixtures

Synonyms : Pentane-1,5-dial  
Glutaric dialdehydesolution

Formula : C<sub>5</sub>H<sub>8</sub>O<sub>2</sub>  
Molecular weight : 100.12 g/mol

Component	Classification	Concentration
<b>Glutaraldehyde</b>		
CAS-No. 111-30-8	Flam. Liq. 4; Acute Tox. 3;	>= 50 - < 55 %
EC-No. 203-856-5	Acute Tox. 2; Skin	
Index-No. 605-022-00-X	Corr./Irrit. 1B; Eye Dam./Irrit. 1; Resp. Sens. 1; Skin Sens. 1A; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 2; H227, H301, H330, H314, H318, H334, H317, H335, H400, H411 Concentration limits: >= 0.5 %: STOT SE 3, H335; M-Factor - Aquatic Acute: 1	

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### a. In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.  
Remove contact lenses.

### b. In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

### c. If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

### d. If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

### e. Most important acute symptoms/effects

No data available

### Most important delayed symptoms/effects

No data available

### f. Notes to physician

No data available

### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

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## SECTION 5: Firefighting measures

### a. Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

### Extinguishing media which shall not be used for safety reasons

For this substance/mixture no limitations of extinguishing agents are given.

### b. Specific hazards arising from the chemical

Mixture with combustible ingredients. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.

### c. Special protective actions for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6: Accidental release measures

### a. Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

### b. Environmental precautions

Do not let product enter drains.

### c. Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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## SECTION 7: Handling and storage

### a. Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### b. Conditions for safe storage

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons. Handle and store under inert gas.

### c. Storage class

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

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## SECTION 8: Exposure controls/personal protection

### a. Control parameters

Components	CAS-No.	Value	Control parameters	Basis
Glutaraldehyde	111-30-8	C	0.05 ppm	KR OEL

**b. Appropriate engineering controls**

No data available

**c. Personal protective equipment**

**Respiratory protection**

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Eye protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

**Skin and body protection**

protective clothing

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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**SECTION 9: Physical and chemical properties**

a. Appearance

Form                      liquid, clear

Color                      colorless

b. Odor                      No data available

c. Odor Threshold	No data available
d. pH	3 - 4.5 at 25 °C
e. Melting point	-21 °C
f. Initial boiling point	101 °C at 1,013 hPa
g. Flash point	No data available
h. Evaporation rate	No data available
i. Flammability (solid, gas)	No data available
j. Lower explosion limit	No data available
Upper explosion limit	No data available
k. Vapor pressure	20 hPa at 20 °C
l. Water solubility	soluble
m. Relative vapor density	3.46 - (Air = 1.0)
n. Density	1.106 g/mL at 25 °C
o. Partition coefficient: n- octanol/water	No data available
p. Autoignition temperature	No data available
q. Decomposition temperature	No data available
r. Viscosity, dynamic	No data available
Viscosity, kinematic	No data available
s. Molecular weight	100.12 g/mol

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## SECTION 10: Stability and reactivity

### a. Chemical stability

No data available

### b. Possibility of hazardous reactions

Violent reactions possible with:

The generally known reaction partners of water.

**c. Conditions to avoid**

Strong heating.

**d. Incompatible products**

Strong acids, Strong bases, Strong oxidizing agents

**e. Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

**Thermal decomposition**

No data available

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**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Mixture****Acute toxicity**

Oral: No data available

Acute toxicity estimate Oral - 400 mg/kg

(Calculation method)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute toxicity estimate Inhalation - 4 h - 0.56 mg/l - dust/mist(Calculation method)

Symptoms: Possible symptoms:, mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Dermal: No data available

**Skin corrosion/irritation**

Remarks: No data available

Remarks: Mixture causes burns.

**Serious eye damage/eye irritation**

Remarks: No data available

Remarks: Mixture causes serious eye damage.

Risk of blindness!

**Respiratory or skin sensitization**

Mixture may cause allergy or asthma symptoms or breathing difficulties if inhaled. Mixture may cause an allergic skin reaction.

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

Remarks: No data available

Mixture may cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

## 11.2 Additional Information

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

### Components

#### Glutaraldehyde

##### Acute toxicity

LD50 Oral - Rat - male and female - 200 mg/kg  
(US-EPA)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

LC50 Inhalation - Rat - male and female - 4 h - 0.28 mg/l - dust/mist  
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male and female - > 1,000 mg/kg  
(US-EPA)

##### Skin corrosion/irritation

Skin - Rabbit

Result: Corrosive - 4 h  
(OECD Test Guideline 404)

Remarks: (50% solution)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

##### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye  
(Draize Test)

Remarks: (50% solution)

Remarks: Causes serious eye damage.

##### Respiratory or skin sensitization

May cause allergic respiratory and skin reactions Chronic exposure may cause dermatitis. largely based on human evidence

##### Germ cell mutagenicity

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Result: positive

Remarks: (50% solution)

Method: OECD Test Guideline 486

Species: Rat - male - Liver cells

Result: negative

Remarks: (50% solution)

##### Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

##### Reproductive toxicity

No data available

##### Specific target organ toxicity - single exposure

May cause respiratory irritation. - Respiratory system



Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute oral toxicity - If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

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**SECTION 12: Ecological information**

**12.1 Toxicity**

**Mixture**

No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Endocrine disrupting properties**

No data available

**12.7 Other adverse effects**

No data available

**Components**

**Glutaraldehyde**

Toxicity to fish	static test LC50 - Oncorhynchus mykiss (rainbow trout) - 0.8 mg/l - 96 h (US-EPA)
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Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 0.6 mg/l - 72 h (OECD Test Guideline 201)
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Toxicity to bacteria	
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**SECTION 13: Disposal considerations**

**a. Disposal methods**

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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**SECTION 14: Transport information****IMDG**

UN number: 2922 Class: 8 (6.1) Packing group: II EMS-No: F-A, S-B  
Proper shipping name: CORROSIVE LIQUID, TOXIC, N.O.S. (Glutaraldehyde)  
Marine pollutant :yes

**IATA**

UN number: 2922 Class: 8 (6.1) Packing group: II  
Proper shipping name: Corrosive liquid, toxic, n.o.s. (Glutaraldehyde)

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**SECTION 15: Regulatory information****a. Regulation under the Occupational Safety and Health Act**

Harmful Substances Required Permission for Manufacture - Not applicable

Harmful Substances Prohibited from Manufacturing - Not applicable

Harmful Agents to be kept below Occupational Exposure Limits - Glutaraldehyde, CAS 111-30-8

Controlled Substances Subject to Environment Monitoring - Glutaraldehyde, CAS 111-30-8

Controlled Substances Subject to Health Examination - Glutaraldehyde, CAS 111-30-8

Hazardous Substances Subject to Process Safety Management (PSM) Reporting Obligation  
Not applicable

Hazardous substances requiring management - Glutaraldehyde, CAS 111-30-8

Special Management Materials - Not applicable

Occupational exposure limit substances - Please refer to chapter 8

**b. Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act**

Toxic Chemicals - Glutaraldehyde, CAS 111-30-8

Restricted Chemicals - Not applicable

Prohibited Chemicals - Not applicable

Accident Precaution Chemicals - Not applicable

**c. Dangerous Substances Safety Management Act**

Not Applicable to Dangerous Materials

**d. Waste Control Act**

Follow article 13 of the act to dispose the product waste

**e. Other regulations****KECI Number**

On the inventory, or in compliance with the inventory

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**SECTION 16: Other information****a. List of references**

**b. Issuing date:** 2019.01.14

**c. Version:** 6.12 Revision Date 2024.11.05

**e. Further information**

### **Text of H-code(s) and R-pharse(s) mentioned in Section 3**

H227	Combustible liquid.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.  
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