

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**Product Identifier**

Nama Produk **Glutaric dialdehyde 25 % solution**  
 Product Description: **Glutaric dialdehyde 25 % solution**  
 Cat No. : BP2548-1; BP2548-4  
 Synonyms Glutaraldehyde; Pentanedial  
 CAS-No 111-30-8  
 Molecular Formula C5 H8 O2

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

Recommended Use Laboratory chemicals.  
 Uses advised against No Information available

**Details of the supplier of the safety data sheet**

Company Fisher Scientific (M) Sdn Bhd No. 3, Jalan Sepadu 25/123,  
 Taman Perindustrian Axis, Seksyen 25,  
 40400 Shah Alam, Selangor Darul Ehsan, Malaysia.

Supplier  
 E-mail address Enquiry.my@thermofisher.com

Emergency Telephone Number  
 (603) 5122 8888

**SECTION 2: HAZARDS IDENTIFICATION**
**Classification of the substance or mixture**

Acute oral toxicity	Category 4 (H302)
Acute Inhalation Toxicity - Vapors	Category 4 (H332)
Skin Corrosion/Irritation	Category 1 B (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Respiratory Sensitization	Category 1 (H334)
Skin Sensitization	Category 1 (H317)
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 2 (H411)

**Label Elements**


Signal Word

Danger

Hazard Statements

ACRBP2548

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H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H400 - Very toxic to aquatic life  
H411 - Toxic to aquatic life with long lasting effects  
H302 + H332 - Harmful if swallowed or if inhaled

## Precautionary Statements

P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/physician  
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower

## Other Hazards

EUH071 - Corrosive to the respiratory tract  
Corrosive to the respiratory tract

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Weight %
Glutaraldehyde	111-30-8	25
Water	7732-18-5	75

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.
<b>Ingestion</b>	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
<b>Inhalation</b>	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue

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and danger of perforation. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

## Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### **Suitable Extinguishing Media**

CO<sub>2</sub>, dry chemical, dry sand, alcohol-resistant foam.

#### **Extinguishing media which must not be used for safety reasons**

No information available.

### Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

#### **Hazardous Combustion Products**

Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>).

### Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

Should not be released into the environment.

### Methods and Material for Containment and Cleaning Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest.

### Conditions for Safe Storage, Including any Incompatibilities

KEEP REFRIGERATED or in a very cool place to retard polymerisation. Corrosives area. To maintain product quality: Keep

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refrigerated.

## Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
Glutaraldehyde		Ceiling: 0.05 ppm	(Vacated) Ceiling: 0.2 ppm (Vacated) Ceiling: 0.8 mg/m <sup>3</sup>

Component	European Union	The United Kingdom	Germany
Glutaraldehyde		STEL: 0.05 ppm 15 min STEL: 0.2 mg/m <sup>3</sup> 15 min TWA: 0.05 ppm 8 hr TWA: 0.2 mg/m <sup>3</sup> 8 hr Resp. Sens.	TWA: 0.05 ppm (8 Stunden). AGW - exposure factor 2 TWA: 0.2 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 0.05 ppm (8 Stunden). MAK TWA: 0.21 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 0.1 ppm Höhepunkt: 0.42 mg/m <sup>3</sup>

### Exposure Controls

#### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles

#### Hand Protection

Protective gloves

#### Skin and body protection

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

#### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

#### Recommended Filter type:

Particulates filter conforming to EN 143 or Acid gases filter Type E Yellow conforming to EN14387

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

When RPE is used a face piece Fit Test should be conducted

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

### Environmental exposure controls

Prevent product from entering drains Do not allow material to contaminate ground water system Local authorities should be advised if significant spillages cannot be contained

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Clear	
Physical State	Liquid	
Odor	pungent	
Odor Threshold	No data available	
pH	2.9	
Melting Point/Range	-5 °C / 23 °F	
Softening Point	No data available	
Boiling Point/Range	101 °C / 213.8 °F	@ 760 mmHg
Flash Point	No information available	Method - No information available
Evaporation Rate	No data available	
Flammability (solid,gas)	Not applicable	Liquid
Explosion Limits	No data available	
Vapor Pressure	16.4 mmhg @ 20 °C	
Vapor Density	No data available	(Air = 1.0)
Specific Gravity / Density	1.060	
Bulk Density	Not applicable	Liquid
Water Solubility	Soluble	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Glutaraldehyde	0.22	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	
Molecular Formula	C5 H8 O2	
Molecular Weight	100.12	

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available.

### Chemical Stability

Stable under normal conditions.

### Possibility of Hazardous Reactions

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## **Hazardous Polymerization Hazardous Reactions**

Hazardous polymerization does not occur.  
None under normal processing.

## **Conditions to Avoid**

Incompatible products. Excess heat. Temperatures above 25°C.

## **Incompatible Materials**

Strong oxidizing agents. Strong acids. Strong bases. Alcohols. Amines.

## **Hazardous Decomposition Products**

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

## **SECTION 11: TOXICOLOGICAL INFORMATION**

### **Information on Toxicological Effects**

#### **Acute Toxicity**

#### **Toxicology data for the components**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Glutaraldehyde	77 mg/kg ( Rat )	>2500 mg/kg ( Rat )	0.28 - 0.39 mg/L ( Rat ) 4 h
Water	-	-	-

#### **Chronic Toxicity**

##### **Carcinogenicity**

There are no known carcinogenic chemicals in this product

##### **Sensitization**

##### **Mutagenic Effects**

##### **Reproductive Effects**

##### **Developmental Effects**

##### **Target Organs**

May cause sensitization by skin contact

No information available

No information available

No information available

No information available.

#### **Other Adverse Effects**

##### **Symptoms**

Tumorigenic effects have been reported in experimental animals.

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated.

Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

## **SECTION 12: ECOLOGICAL INFORMATION**

### **Ecotoxicity effects**

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
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Glutaraldehyde	LC50: = 5.4 mg/L, 96h static (Pimephales promelas) LC50: 7.8 - 22 mg/L, 96h static (Lepomis macrochirus) LC50: 2.6 - 4.8 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 7.8 - 13 mg/L, 96h static (Oncorhynchus mykiss)	EC50: 0.56 - 1.0 mg/L, 48h Static (Daphnia magna) EC50: = 14 mg/L, 48h (Daphnia magna)	EC50: = 0.84 mg/L, 96h (Desmodesmus subspicatus) EC50: = 0.61 mg/L, 72h (Desmodesmus subspicatus)	EC50 = 13.3 mg/L 17 h EC50 = 76.0 mg/L 5 min
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## Persistence and degradability

### **Persistence**

Readily biodegradable

Miscible with water, Persistence is unlikely, based on information available, Soluble in water.

### **Degradation in sewage treatment plant**

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

## Bioaccumulative potential

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)
Glutaraldehyde	0.22	No data available

## Mobility in soil

The product is water soluble, and may spread in water systems. . Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

## Other adverse effects

No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### **Waste from Residues/Unused Products**

Should not be released into the environment Waste is classified as hazardous Dispose of in accordance with the European Directives on waste and hazardous waste Dispose of in accordance with local regulations

#### **Contaminated Packaging**

Dispose of this container to hazardous or special waste collection point.

#### **Other Information**

Do not dispose of waste into sewer Waste codes should be assigned by the user based on the application for which the product was used Do not empty into drains Large amounts will affect pH and harm aquatic organisms Do not let this chemical enter the environment

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

UN-No	UN3265
Hazard Class	8
Packing Group	II
Proper Shipping Name	Corrosive liquid, acidic, organic, n.o.s.

Glutaric dialdehyde

### Road and Rail Transport

UN-No	UN3265
Hazard Class	8
Packing Group	II
Proper Shipping Name	Corrosive liquid, acidic, organic, n.o.s.

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## IATA

**UN-No** UN3265  
**Hazard Class** 8  
**Packing Group** II  
**Proper Shipping Name** Corrosive liquid, acidic, organic, n.o.s.  
Glutaric dialdehyde

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

**International Inventories** X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Glutaraldehyde	203-856-5	-		X	X	-	X	X	X	X	KE-2796 9
Water	231-791-2	-		X	X	-	X	X	X	X	KE-3540 0

### National Regulations

**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** (volatile organic compound)



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## Key literature references and sources for data

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

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Revision Summary

Not applicable.

**In accordance with local and national regulations: Occupational Safety and Health  
(Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## Disclaimer

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

**End of Safety Data Sheet**