Chemical Safety Data Sheet MSDS / SDS

Glutaral SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Glutaral

CAS: 111-30-8

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

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

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SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Skin corrosion, Sub-category 1B

Skin sensitization, Sub-category 1A
Acute toxicity - Category 2, Inhalation
Specific target organ toxicity – single exposure, Category 3
Respiratory sensitization, Category 1
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H410 Very toxic to aquatic life with long lasting effects
H301 Toxic if swallowed
H314 Causes severe skin burns and eye damage
H317 May cause an allergic skin reaction
H330 Fatal if inhaled
H335 May cause respiratory irritation
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
P273 Avoid release to the environment.

Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).

P330 Rinse mouth.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P333+P317 If skin irritation or rash occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P320 Specific treatment is urgent (see ... on this label).
P319 Get medical help if you feel unwell.
P342+P316 If experiencing respiratory symptoms: Get emergency medical help immediately.
P391 Collect spillage.

Storage

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

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Glutaral
Common names and synonyms:	Glutaral
CAS number:	111-30-8
EC number:	203-856-5
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Contact with liquid causes severe irritation of eyes and irritation of skin. Chemical readily penetrates skin in harmful amounts. Ingestion causes irritation of mouth and stomach. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aldehydes and Related Compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Literature sources indicate that this chemical is nonflammable. (NTP, 1992)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Consult an expert! Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb liquid in sand or inert absorbent. Wash away remainder with plenty of water. Store and dispose of according to local regulations.

Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water.

Methods and materials for containment and cleaning up

Accidental release measures. Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Precautions for safe handling

See Chemical Dangers. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs.Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Recommended storage temperature: -20 deg C. Store under inert gas. Air sensitive.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.05 ppm as STEL; (SEN); A4 (not classifiable as a human carcinogen).MAK: 0.21 mg/m3, 0.05 ppm; peak limitation category: I(2); sensitization of respiratory tract and skin (SAH); carcinogen category: 4; pregnancy risk group: C

Biological limit values

no data available

Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Liquid.
Colour:	Water clear.

Odour:	Pungent odor
Melting point/freezing point:	Ca. -33 °C.
Boiling point or initial boiling point and boiling range:	101.5 °C. Atm. press.:987.1 hPa.
Flammability:	Noncombustible Liquid
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	71 °C
Auto-ignition temperature:	395 °C. Atm. press.:1 002 - 1 006 hPa.
Decomposition temperature:	187-189°C
pH:	Mildly acidic (50% solution)
Kinematic viscosity:	kinematic viscosity (in mm2/s) = 12.75. Temperature:25.0°C.
Solubility:	Miscible with water
Partition coefficient n-octanol/water:	log Pow = -0.36. Temperature:23 °C.
Vapour pressure:	20 hPa. Temperature:20.1 °C.;28 hPa. Temperature:25.1 °C.
Density and/or relative density:	1.13. Temperature:20 °C.
Relative vapour density:	3.4 (Air = 1)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Polymerizes in the presence of water. (NTP, 1992)

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

NonflammableGLUTARALDEHYDE may discolor on exposure to air. It polymerizes on heating. This chemical is incompatible with strong oxidizing agents. It polymerizes in the presence of water. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Strong bases, strong oxidizing agents, strong acids.

Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating fumes.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat (male) - 246 mg/kg bw.

Inhalation: LC50 - rat (male/female) - 0.28 - 0.39 mg/L air (analytical).

Dermal: LD50 - rabbit (male/female) - > 2 000 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

A4; Not classifiable as a human carcinogen. Glutaraldehyde

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation may cause asthma. See Notes.

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Oncorhynchus mykiss (previous name: Salmo gairdneri) - 10 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 29.73 mg/L - 48 h.

Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - 1.2 mg/L - 72 h.

Toxicity to microorganisms: EC20 - activated sludge, domestic - ca. 15 mg/L - 30 min. Remarks:Respiration rate.

Persistence and degradability

AEROBIC: Glutaraldehyde, present at 100 mg/L, reached 59% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). Using OECD Guideline 301C (Ready biodegradability: Modified MITI Test (I)), glutaraldehyde reached 74% of its theoretical BOD in 28 days and 80% DOC in 15 days with classified the compound as readily biodegradable(2). Glutaraldehyde was found to be readily biodegradable using OECD Guideline 301D (Closed Bottle Test)(2). In a DOC die-away test, glutaradehyde, present at 25 mg/L, showed 83% degradation in 5 days using a sewage inoculum(3). Glutaraldehyde, present at 8.3 mg/L, degraded 60% in 28 days using sewage inoculum in a CO2 evolution test(3). In a closed bottle test, glutaraldehyde present at 2.0 mg/L, degraded 64% in 28 days using a Polyseed inoculum(3). A higher biodegradability with a short lag time was observed when the glutaraldehyde concentrations in the test systems were low (<2 mg/L) than when the concentrations were high (>8 mg/L). Since bacterial inhibition for glutaraldehyde occurs at about 5 mg/L, the lower biodegradation rates observed in studies where high concentrations of glutaraldehyde were used were likely due to inhibition of the inoculum(3). In a closed bottle test using seawater as inoculum, glutaraldehyde showed 73% degradation in 28 days(3). The major metabolite of glutaraldehyde produced by microbes in an aerobic sediment-river water system was carbon dioxide, with glutaric acid formed as an intermediate in the water phase(3). The calculated pseudo-first-order half-life of glutaraldehyde catabolism in water (based on the loss of the parent compound) under aerobic conditions was 10.6 hours(3). A soil degradation study using a loamy sand soil and initial glutaraldehyde concentration of 10 ppm observed a pseudo-first order biodegradation half-life of 1.7 days due primarily to soil microorganisms(4).

Bioaccumulative potential

An estimated BCF of 3 was calculated for glutaraldehyde(SRC), using a log Kow of -0.33(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

Aqueous solutions of [14C] glutaraldehyde in 0.01 M calcium chloride were prepared at concentrations of 0.51, 1.0, 2.5, 5.0, and 10.3 g/L and used to determine the adsorption/desorption characteristics of glutaraldehyde in various soil types according to FIFRA 163-1 guidelines(1). Measured Koc values were 210, 500, 340, 460, and 120 in sandy loam, silty clay loam, silt loam, loamy sand, and sediment, respectively(1). Batch adsorption studies determined Koc values of 22.2, 18.9 and 5.1 in New York loam, Nebraska silt loam and Highview clay loam soils respectively(3). According to a classification scheme(2), these Koc values suggest that glutaraldehyde is expected to have very high to moderate mobility in soil.

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN3265 (For reference only, please check.)
IMDG: UN3265 (For reference only, please check.)
IATA: UN3265 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (For reference only, please check.)
IMDG: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (For reference only, please check.)
IATA: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.)
IMDG: 8 (For reference only, please check.)
IATA: 8 (For reference only, please check.)

Packing group, if applicable

ADR/RID: I (For reference only, please check.)
IMDG: I (For reference only, please check.)
IATA: I (For reference only, please check.)

Environmental hazards

ADR/RID: Yes
IMDG: Yes
IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Other Information

The occupational exposure limit value should not be exceeded during any part of the working exposure. The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Anyone who has shown symptoms of asthma due to this substance should avoid all further contact with this substance. See ICSC 0158.