

SAFETY DATA SHEET

Version 4.12
 Revision Date 07/02/2014
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	γ-Butyrolactone	
Product Number	:	B103608	
Brand	:	Aldrich	
Product Use	:	For laboratory research purposes.	
Supplier	:	Sigma-Aldrich Canada Co. 2149 Winston Park Drive OAKVILLE ON L6H 6J8 CANADA	Manufacturer : Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA
Telephone	:	+1 9058299500	
Fax	:	+1 9058299292	
Emergency Phone # (For both supplier and manufacturer)	:	1-800-424-9300	
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956	

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Central nervous system Central nervous system

WHMIS Classification

D2B Toxic Material Causing Other Toxic Effects Moderate eye irritant

GHS Classification

Acute toxicity, Oral (Category 4)
 Serious eye damage (Category 1)
 Specific target organ toxicity - single exposure (Category 3)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302 Harmful if swallowed.
 H318 Causes serious eye damage.
 H336 May cause drowsiness or dizziness.

Precautionary statement(s)

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P280 Wear protective gloves/ eye protection/ face protection.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard: 2
 Chronic Health Hazard: *

Flammability: 1
Physical hazards: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
Skin Harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.
Ingestion Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 4-Hydroxybutyric acid lactone
GBL
γ-Hydroxybutyric acid lactone
gamma-Butyrolactone

Formula : C₄H₆O₂ C₄H₆O₂
Molecular Weight : 86.09 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
γ-Butyrolactone			
96-48-0	202-509-5	-	<=100%

4. FIRST AID MEASURES

General advice

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Combustible liquid

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Explosion data - sensitivity to mechanical impact

no data available

Explosion data - sensitivity to static discharge

no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions

Do not let product enter drains.

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.

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage

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.

hygroscopic

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Personal protective equipment****Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Nature latex/chloroprene

Minimum layer thickness: 0.6 mm

Break through time: 100 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, 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 CE 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

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Specific engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear
Colour	colourless

Safety data

pH	4 at 100 g/l at 20 °C (68 °F)
Melting point/freezing point	Melting point/range: -45 °C (-49 °F) - lit.
Boiling point	204 - 205 °C (399 - 401 °F) - lit.
Flash point	98 °C (208 °F) - closed cup
Ignition temperature	455 °C (851 °F)
Auto-ignition temperature	no data available
Lower explosion limit	1.4 %(V)
Upper explosion limit	16 %(V)
Vapour pressure	2.0 hPa (1.5 mmHg) at 20 °C (68 °F)
Density	1.12 g/cm ³ at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: -0.57
Relative vapour density	2.97 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability

hygroscopic Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Materials to avoid

Strong acids, Strong bases, Strong oxidizing agents, Strong reducing agents, Zinc, Plastics

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - rat - 1,540 mg/kg

Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity). Respiratory disorder

Inhalation LC50

LC50 Inhalation - rat - 4 h - > 5,100 mg/m³

Dermal LD50

LD50 Dermal - guinea pig - > 5,000 mg/kg

Other information on acute toxicity

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

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.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (γ -Butyrolactone)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

an anesthetic effect on the central nervous system characterized by a loss of sensation., Preliminary excitement is the initial effect followed by relaxation, stupor, or sleep., Nausea, Dizziness, Headache

Synergistic effects

no data available

Additional Information

RTECS: LU3500000

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - > 220 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - > 500 mg/l - 48 h Method: Directive 67/548/EEC, Annex V, C.2.
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - 360 mg/l - 72 h

Persistence and degradability

Biodegradability	Biotic/Aerobic Result: 90 % - Readily biodegradable. Method: Directive 67/548/EEC Annex V, C.4.F.
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Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

Biochemical Oxygen Demand (BOD)	1,160 mg/g
Adsorbed organic bound halogens (AOX)	Remarks: Product does not contain any organic halogens.
Additional ecological information	no data available

13. DISPOSAL CONSIDERATIONS**Product**

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

Not dangerous goods

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION

WHMIS Classification

D2B Toxic Material Causing Other Toxic Effects Moderate eye irritant

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION**Text of H-code(s) and R-phrases(s) mentioned in Section 3****Further information**

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