

## Chemical Safety Data Sheet MSDS / SDS

## Gamma Butyrolactone

Revision Date:2025-06-14 Revision Number:1

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

## Product identifier

Product name : Gamma Butyrolactone  
CBnumber : CB9719491  
CAS : 96-48-0  
EINECS Number : 202-509-5  
Synonyms : gbl,Butyrolactone

## 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  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P321 Specific treatment (see ... on this label).

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
Continuerinsing.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

## Hazard statements

H336 May cause drowsiness or dizziness

H318 Causes serious eye damage

H315 Causes skin irritation

H302 Harmful if swallowed

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## SECTION 3: Composition/information on ingredients

### Substance

Product name	: Gamma Butyrolactone
Synonyms	: gbl, Butyrolactone
CAS	: 96-48-0
EC number	: 202-509-5
MF	: C <sub>4</sub> H <sub>6</sub> O <sub>2</sub>
MW	: 86.09

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## SECTION 4: First aid measures

### Description of first aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Call in physician.

#### In case of skin contact

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

#### In case of eye contact

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

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

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

#### Unsuitable extinguishing media

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

### Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

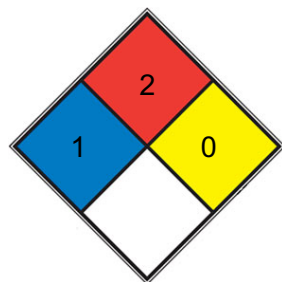
### Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

### Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



■ HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely

■ FIRE 2 divided suspended solids that do not require heating before ignition can occur. Flash point between 37.8 and 93.3 °C (100 and 200 °F). (e.g. diesel fuel, [sulfur](#))

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N2](#))

□ SPEC.

□ HAZ.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

### 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 with liquid-absorbent and neutralising material (e.g. Chemizorb? H ?, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

### Reference to other sections

For disposal see section 13.

## SECTION 7: Handling and storage

## **Precautions for safe handling**

### **Advice on safe handling**

Avoid generation of vapours/aerosols.

### **Hygiene measures**

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

For precautions see section 2.2.

### **Conditions for safe storage, including any incompatibilities**

### **Storage conditions**

Tightly closed.

hygroscopic

### **Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

### **Exposure controls**

#### **Personal protective equipment**

##### **Eye/face 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

##### **Body Protection**

protective clothing

##### **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.

Recommended Filter type: Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

##### **Control of environmental exposure**

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	colorless liquid, clear
Odour	unpleasant
Odour Threshold	No data available
pH	4 - 5 at 100 g/l at 20 °C
Melting point/freezing point	Melting point/range: -45 °C - lit.
Initial boiling point and boiling range	204 - 205 °C - lit.
Flash point	98 °C - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 16 %(V) Lower explosion limit: 1,4 %(V)
Vapour pressure	ca.0,34 hPa at 20 °C - (calculated) 3 hPa at ca.52 °C - Tested according to Directive 92/69/EEC.
Vapour density	2,97 - (Air = 1.0)
Relative density	No data available
Water solubility	1.000 g/l at 20 °C - OECD Test Guideline 105- miscible in all proportions
Partition coefficient: n-octanol/water	log Pow: -0,566 at 25 °C - OECD Test Guideline 107 - Bioaccumulation is not expected.
Autoignition temperature	435 °C at 1.013,25 hPa - DIN 51794
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: 2 mPa.s at 20 °C1,25 mPa.s at 25 °C1,25 mPa.s at 50 °C
Explosive properties	No data available
Oxidizing properties	No data available

### Other safety information

Relative vapor density  
2,97 - (Air = 1.0)

## SECTION 10: Stability and reactivity

### Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

No data available

### Conditions to avoid

Strong heating.

### **Incompatible materials**

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

### **Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - male and female - 1.582 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5,1 mg/l (OECD Test Guideline 403)

LD50 Dermal - Guinea pig - > 5.000 mg/kg Remarks: (RTECS)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation - 20 h Remarks: (ECHA)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Irreversible effects on the eye (OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

(OECD Test Guideline 429)

#### **Germ cell mutagenicity**

Test Type: Genotoxicity in vivo Species: Drosophila melanogaster

Application Route: Oral

Method: OECD Test Guideline 477 Result: negative

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

No data available

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

May cause drowsiness or dizziness.

#### **Specific target organ toxicity - repeated exposure**

No data available

#### **Aspiration hazard**

No data available

#### **Toxicity**

LD50 orally in rats: 17.2 ml/kg (Smyth)

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## **SECTION 12: Ecological information**

## **Toxicity**

### **Toxicity to fish**

static test LC50 - *Lepomis macrochirus* (Bluegill sunfish) - 56 mg/l - 96 h

(OECD Test Guideline 203)

### **Toxicity to daphnia and other aquatic invertebrates**

static test EC50 - *Daphnia magna* (Water flea) - > 500 mg/l - 48 h (Directive 67/548/EEC, Annex V, C.2.)

### **Toxicity to algae**

static test ErC50 - *Desmodesmus subspicatus* (green algae) - >

1.000 mg/l - 72 h (DIN 38412)

### **Toxicity to bacteria**

static test IC50 - *Tetrahymena pyriformis* - 4.518 mg/l - 40 h Remarks: (ECHA)

## **Persistence and degradability**

Biodegradability aerobic - Exposure time 14 d

Result: 95 % - Readily biodegradable.

Biochemical Oxygen Demand (BOD)

(OECD Test Guideline 301C)

1.160 mg/g

## **Bioaccumulative potential**

No data available

## **Mobility in soil**

No data available

## **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## **Toxics Screening Level**

The initial threshold screening level (ITSL) for gamma-butyrolactone (GBL) is 280 µg/m<sup>3</sup> (24-hour average).

## **Other adverse effects**

Additional ecological information

Biological effects:

Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities.

Discharge into the environment must be avoided.

Adsorbed organic bound halogens (AOX)

Remarks: Product does not contain any organic halogens.

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## SECTION 13: Disposal considerations

### Waste treatment methods

#### Incompatibilities

4-Butyrolactone is incompatible with oxidizers (chlorates, nitrates, peroxides, permanganates, perchlorates, chlorine, bromine, fluorine, etc.); contact may cause fires or explosions. Keep away from alkaline materials, alcohols, amines, strong and inorganic acids, strong bases.

#### Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### Waste Disposal

Use a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. It is inappropriate and possibly dangerous to the environment to dispose of expired or waste drugs and pharmaceuticals by flushing them down the toilet or discarding them to the trash.

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## SECTION 14: Transport information

### UN number

ADR/RID: - IMDG: - IATA: -

### UN proper shipping name

ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods

### Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

### Packaging group

ADR/RID: - IMDG: - IATA: -

### Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

### Special precautions for user

### Further information

Not classified as dangerous in the meaning of transport regulations.

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## SECTION 15: Regulatory information

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

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Not Listed. website: <https://www.mem.gov.cn/>

#### **Measures for Environmental Management of New Chemical Substances**

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

EC Inventory:Listed.

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

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## **SECTION 16: Other information**

### **Abbreviations and acronyms**

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

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

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

STEL: Short term exposure limit

TWA: Time Weighted Average

### **References**

【1】CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

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

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

【7】HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

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

【10】Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

### **Other Information**

Use of alcoholic beverages enhances the harmful effect.

#### **Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the

appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.