

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 10.05.2023

Version number 1

Revision: 10.05.2023

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

- **1.1 Product identifier**
- **Trade name:** Gamma Butyrolactone
- **Article number:** 1379
- **CAS Number:**  
96-48-0
- **EC number:**  
202-509-5
- **Registration number** 01-2119471839-21
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture**  
Solvent for various applications  
Intermediate for organic synthesis
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Möller Chemie GmbH & Co. KG  
Bürgerkamp 1  
D-48565 Steinfurt  
Tel.: 02551/9340-0  
Fax: 02551/9340-60
- **Further information obtainable from:** Product safety department
- **1.4 Emergency telephone number:**  
Poison Control Center Mainz - 24 hour emergency service - Tel.: +49 (0) 6131/19240

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The substance is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger
- **Hazard statements**  
H302 Harmful if swallowed.  
H318 Causes serious eye damage.  
H336 May cause drowsiness or dizziness.
- **Precautionary statements**  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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- P280 *Wear 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.*
- P310 *Immediately call a POISON CENTER/doctor.*
- P405 *Store locked up.*
- P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **2.3 Other hazards**

*The product does not contain any substance above the legal limits included on the list for endocrine disrupting properties established under Article 59(1) of Regulation (EC) No 1907/2006 or under Commission Delegated Regulation (EU) 2017/2100 or of Commission Regulation (EU) 2018/605 has endocrine disrupting properties.*

· **Results of PBT and vPvB assessment**

· **PBT:**

*The product does not contain any substances above legal limits that meet the criteria for PBT (persistent, bioaccumulative and toxic).*

· **vPvB:**

*The product does not contain any substances above legal limits that meet the criteria for vPvB (very persistent and very bioaccumulative).*

### SECTION 3: Composition/information on ingredients

· **3.1 Substances**

· **CAS No. Description**

96-48-0 4 Gamma Butyrolactone

· **Identification number(s)**

· **EC number:** 202-509-5

### SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information:**

*First aiders pay attention to self-protection.  
Take affected persons out of danger area and lay down.  
Remove contaminated clothing immediately.*

· **After inhalation:**

*Supply fresh air.  
Consult a doctor if breathing difficulties persist.*

· **After skin contact:**

*In case of contact with the skin, take off soiled, soaked clothing immediately and wash the skin immediately with plenty of water and soap.  
Seek medical treatment.*

· **After eye contact:**

*Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.  
Remove any contact lenses if possible. Rinse further.*

· **After swallowing:**

*Rinse out mouth and then drink plenty of water.  
Call for a doctor immediately.*

· **4.2 Most important symptoms and effects, both acute and delayed narcotic effects.**

· **4.3 Indication of any immediate medical attention and special treatment needed**

*No further relevant information available.*

### SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents:** CO<sub>2</sub>, powder or water spray. Fight larger fire with alcohol resistant foam.

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- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **5.2 Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Carbon monoxide, carbon dioxide  
Nitrogen oxides (NO<sub>x</sub>)  
Solvent vapors are heavier than air and spread along floors.  
Vapors can form an explosive mixture with air.
- **5.3 Advice for firefighters**  
Cool containers with water spray.  
Do not inhale explosion gases and fumes  
Extinguishing measures to suit the environment  
Do not let fire-fighting water get into the canals and bodies of water.  
Collect contaminated fire fighting water separately.  
Fight fire with normal precautions from a reasonable distance.
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear chemical protective clothing.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Avoid contact with skin, eyes, clothing.  
Keep away from ignition sources.  
Ensure adequate ventilation
- **6.2 Environmental precautions:**  
Do not allow to enter sewers/ surface or ground water.  
Inform respective authorities in case of seepage into water course or sewage system.
- **6.3 Methods and material for containment and cleaning up:**  
Take up with liquid-binding material (e.g. sand, kieselguhr, universal binder).  
Dispose contaminated material as waste according to item 13.
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Avoid contact with skin, eyes and clothing.  
Do not breathe vapour/aerosol
- **Information about fire - and explosion protection:**  
Keep away from sources of ignition - No smoking.  
Take measures against electrostatic discharges.  
Fumes can combine with air to form an explosive mixture.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Keep container tightly closed and store in a dry and well-ventilated place.  
Store only in the original receptacle.
- **Information about storage in one common storage facility:**  
Store away from oxidising agents.  
Store separately from bases.
- **Further information about storage conditions:**  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.  
Protect from moisture.

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- **Storage class:** 10
- **7.3 Specific end use(s)** No further relevant information available.

### SECTION 8: Exposure controls/personal protection

- **8.1 Control parameters**
  - **Ingredients with limit values that require monitoring at the workplace:** Not required.
  - **DNELs**  
Workers (industry):  
Human, inhalative chronic - systemic effects: 130 mg/m<sup>3</sup>  
Human, dermal chronic - systemic effects: 19 mg/kg/day
  - **PNECs**  
Freshwater: 0.056 mg/  
Sea water: 0.006 mg/  
Sewage treatment plant (STP): 452 mg/l  
Freshwater sediment: 0.24 mg/kg  
Soil: 0.015 mg/kg  
Marine sediment: 0.02 mg/kg
  - **Additional information:** The lists valid during the making were used as basis.
  - **8.2 Exposure controls**
  - **Appropriate engineering controls** No further data; see item 7.
  - **Individual protection measures, such as personal protective equipment**
  - **Respiratory protection:** Use suitable respiratory protective device in case of insufficient ventilation.
  - **Hand protection**  
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
  - **Material of gloves**  
IIR: butyl rubber, isobutene-isoprene rubber  
FKM: Fluorelastomer, Fluorkautschuk  
CR: chloroprene (chlorobutadiene) rubber  
NR: natural rubber, latex  
Polyvinyl chloride  
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
  - **Penetration time of glove material**  
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  - **Eye/face protection**
- 

Tightly sealed goggles
- **Body protection:** Protective clothing against liquid chemicals.

### SECTION 9: Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**
- **General Information**
- **Physical state** Fluid
- **Colour:** Colourless
- **Odour:** Characteristic
- **Odour threshold:** Not determined.
- **Melting point/freezing point:** -44- -42 °C

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· <b>Boiling point or initial boiling point and boiling range</b>	204-206 °C
· <b>Flammability</b>	Not applicable.
· <b>Lower and upper explosion limit</b>	
· <b>Lower:</b>	0.3 Vol %
· <b>Upper:</b>	16 Vol %
· <b>Flash point:</b>	93.3-106 °C
· <b>Ignition temperature:</b>	455 °C
· <b>Decomposition temperature:</b>	Not determined.
· <b>pH (100 g/l) at 4 °C</b>	4.5
· <b>Viscosity:</b>	
· <b>Kinematic viscosity</b>	Not determined.
· <b>Dynamic at 20 °C:</b>	2 mPas
· <b>Solubility</b>	
· <b>water at 20 °C:</b>	>1000 g/l
· <b>Partition coefficient n-octanol/water (log value)</b>	Not determined.
· <b>Vapour pressure at 20 °C:</b>	0.213 – 0.344 hPa
· <b>Density and/or relative density</b>	
· <b>Density at 20 °C:</b>	1.13 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not determined.

· **9.2 Other information**

· <b>Appearance:</b>	
· <b>Form:</b>	Fluid
· <b>Important information on protection of health and environment, and on safety.</b>	
· <b>Auto-ignition temperature:</b>	Not determined.
· <b>Explosive properties:</b>	Product does not present an explosion hazard.
· <b>Change in condition</b>	
· <b>Evaporation rate</b>	Not determined.

· **Information with regard to physical hazard classes**

· <b>Explosives</b>	Void
· <b>Flammable gases</b>	Void
· <b>Aerosols</b>	Void
· <b>Oxidising gases</b>	Void
· <b>Gases under pressure</b>	Void
· <b>Flammable liquids</b>	Void
· <b>Flammable solids</b>	Void
· <b>Self-reactive substances and mixtures</b>	Void
· <b>Pyrophoric liquids</b>	Void
· <b>Pyrophoric solids</b>	Void
· <b>Self-heating substances and mixtures</b>	Void
· <b>Substances and mixtures, which emit flammable gases in contact with water</b>	Void
· <b>Oxidising liquids</b>	Void
· <b>Oxidising solids</b>	Void
· <b>Organic peroxides</b>	Void
· <b>Corrosive to metals</b>	Void
· <b>Desensitised explosives</b>	Void

## SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**  
The product is stable if the regulations / instructions for storage and handling are observed.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

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· **10.3 Possibility of hazardous reactions**

*In the event of inadequate ventilation and / or use, the formation of explosive / highly flammable vapor / air mixtures is possible.*

*Dangerous/dangerous reactions with acids, amine.*

· **10.4 Conditions to avoid**

*Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Do not smoke.*

· **10.5 Incompatible materials:**

*Oxidizing agent*

*Alkalis*

*Metal oxides*

*Bases.*

### SECTION 11: Toxicological information

· **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

· **Acute toxicity**

*Harmful if swallowed.*

· **LD/LC50 values relevant for classification:**

Dermal	LD50	5.000 mg/kg (gui)
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· **Skin corrosion/irritation** *Slight irritant effect possible - does not require labeling.*

· **Serious eye damage/irritation**

*Causes serious eye damage.*

· **Respiratory or skin sensitisation** *Based on available data, the classification criteria are not met.*

· **Germ cell mutagenicity** *Based on available data, the classification criteria are not met.*

· **Carcinogenicity** *Based on available data, the classification criteria are not met.*

· **Reproductive toxicity** *Based on available data, the classification criteria are not met.*

· **STOT-single exposure**

*May cause drowsiness or dizziness.*

· **STOT-repeated exposure** *Based on available data, the classification criteria are not met.*

· **Aspiration hazard** *Based on available data, the classification criteria are not met.*

· **11.2 Information on other hazards**

· **Endocrine disrupting properties** *Substance is not listed.*

### SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

*LC50/96 h: 56 mg/l (Lepomis macrochirus)*

*EC50/48 h > 500 mg/l (Daphnia magna)*

· **12.2 Persistence and degradability** *Easily biodegradable*

· **12.3 Bioaccumulative potential** *No further relevant information available.*

· **12.4 Mobility in soil** *No further relevant information available.*

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** *The product is not considered to be persistent, bioaccumulating nor toxic (PBT).*

· **vPvB:** *The product is not considered to be persistent or very bioaccumulative (vPvB).*

· **12.6 Endocrine disrupting properties** *For information on endocrine disrupting properties see section 11.*

· **12.7 Other adverse effects**

· **Additional ecological information:**

· **General notes:**

*Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water*

*Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.*

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### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
This product and its container must be disposed of as hazardous waste.  
Disposal according to local regulations.  
Do not empty into drains.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

### SECTION 14: Transport information

- |                                                                                             |                 |
|---------------------------------------------------------------------------------------------|-----------------|
| · <b>14.1 UN number or ID number</b><br>· <b>ADR, ADN, IMDG, IATA</b>                       | Void            |
| · <b>14.2 UN proper shipping name</b><br>· <b>ADR, ADN, IMDG, IATA</b>                      | Void            |
| · <b>14.3 Transport hazard class(es)</b><br>· <b>ADR, ADN, IMDG, IATA</b><br>· <b>Class</b> | Void            |
| · <b>14.4 Packing group</b><br>· <b>ADR, IMDG, IATA</b>                                     | Void            |
| · <b>14.5 Environmental hazards:</b>                                                        | Not applicable. |
| · <b>14.6 Special precautions for user</b>                                                  | Not applicable. |
| · <b>14.7 Maritime transport in bulk according to IMO instruments</b>                       | Not applicable. |
| · <b>UN "Model Regulation":</b>                                                             | Void            |

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

### SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Product safety department
- **Contact:** Mrs. Steyer
- **Abbreviations and acronyms:**  
ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
DNEL: Derived No-Effect Level (REACH)

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*PNEC: Predicted No-Effect Concentration (REACH)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Acute Tox. 4: Acute toxicity – Category 4**Eye Dam. 1: Serious eye damage/eye irritation – Category 1**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*

EU