

SAFETY DATA SHEET

Preparation Date: 06/04/2015

Revision Date: 06/04/2015

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: B1198
Product Name: GAMMA-BUTYROLACTONE, REAGENT

Other means of identification

Synonyms:
 1,2-Butanolide
 1,4-Butanolide
 2(3H)-Furanone, dihydro-
 2-Oxolanone
 3-Hydroxybutyric acid lactone
 4-Butanolide
 4-Butyrolactone
 4-Deoxytetronic acid
 4-Hydroxybutanoic acid lactone
 4-Hydroxybutyric acid lactone
 Butanoic acid, 4-hydroxy-, gamma-lactone
 Butyric acid lactone
 Butyric acid, 4-hydroxy-, gamma-lactone
 Butyrolactone
 Butyryl lactone
 Butyrylactone
 Dihydro-2(3H)-furanone
 Dihydro-2-furanone
 GBL
 Tetrahydro-2-furanone
 gamma-Hydroxybutyric acid cyclic ester
 gamma-Hydroxybutyric acid lactone
 gamma-Hydroxybutyrolactone

CAS #: 96-48-0
RTECS # LU3500000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Chemical intermediate. Solvent. Stabilizer.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3

Label elements

Warning

Hazard statements

Harmful if swallowed
Causes serious eye irritation
May cause drowsiness or dizziness



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear eye/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
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3. COMPOSITION/INFORMATION ON INGREDIENTS

gamma-Butyrolactone 96-48-0	96-48-0	100	*
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4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126).

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops. Consult a physician if necessary.

Eye Contact:

Flush eyes with water for 15 minutes. Get medical attention.

Inhalation:

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Harmful if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms

May cause skin irritation. Causes serious eye irritation. Drowsiness. Dizziness.

Indication of any immediate medical attention and special treatment needed

Notes to Physician:

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:

Carbon dioxide (CO₂). Dry chemical. Water spray mist or foam.

Unsuitable Extinguishing Media:

No information available.

Specific hazards arising from the chemical

Hazardous Combustion Products:

Carbon oxides

Specific hazards:

May be combustible at high temperatures
May be ignited by heat, sparks or flames
Container explosion may occur under fire conditions or when heated

Special Protective Actions for Firefighters

Specific Methods:

No information available.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Absorb spill with inert material (e.g. vermiculite, dry sand or earth). Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Hygroscopic. Protect from moisture. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

Incompatible Materials:

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
gamma-Butyrolactone 96-48-0	None	None	None	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
gamma-Butyrolactone 96-48-0	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
gamma-Butyrolactone 96-48-0	None	None

Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- Eye protection:** Goggles.
- Skin and body protection:** Long sleeved clothing. apron. Gloves.
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Liquid.	Appearance: Oily.	Color: Clear. Colorless.
Odor: Pleasant. Slight.	Taste No information available	Formula: C4H6O2
Molecular/Formula weight: 86.09	Flammability: No information available	Flash point (°C): 98°C
Flashpoint (°C/°F): 98°C/ 209°F	Flash Point Tested according to: Closed cup	Autoignition Temperature (°C/°F): 455°C/851°F
Lower Explosion Limit (%): 3.6	Upper Explosion Limit (%): 16	pH: No information available
Melting point/range(°C/°F): -45.53°C/ -46.4°F	Boiling point/range(°C/°F): 204°C/ 399.2°F	Decomposition temperature(°C/°F): No information available
Bulk density: No information available	Density (g/cm3): No information available	Specific gravity: 1.13
Vapor pressure @ 20°C (kPa): No information available	Evaporation rate: No information available	Vapor density: >3
VOC content (g/L): No information available	Odor threshold (ppm): 20-50	Partition coefficient (n-octanol/water): -0.64
Viscosity: No information available	Miscibility: Miscible with water	Solubility: Very soluble in Acetone Very soluble in Benzene Very soluble in Ether Very soluble in Ethanol Soluble in Methanol Soluble in Water

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents
Reactive with acids
Reacts with reducing agents
Reactive with bases
Potentially explosive reaction with butanol + 2,4-dichlorophenol + sodium hydroxide

Chemical stability

Stability:

Hygroscopic. Stable under recommended storage conditions.

Possibility of Hazardous Reactions:

Hazardous polymerization does not occur

Conditions to avoid:

Heat. Ignition sources. Exposure to moisture. Exposure to moist air. Incompatible materials.

Incompatible Materials:

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

Hazardous decomposition products: Carbon oxides.

Other Information

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Product name: GAMMA-BUTYROLACTONE, REAGENT

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Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Eyes. Ingestion. Inhalation.

Acute Toxicity

Component Information

gamma-Butyrolactone - 96-48-0

LD50/oral/rat = 1540 mg/kg Oral LD50 Rat

LD50/oral/mouse = 1260 mg/kg (EU Chemicals Bureau IUCLID dataset)

1460 mg/kg [RTECS]

LD50/dermal/rat = No information available

LD50/dermal/rabbit = No information available

LC50/inhalation/rat = >5100 mg/m³ Inhalation LC50 Rat 4 h

>2.68 mg/l 4h (EU Chemicals Bureau IUCLID dataset)

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = >5000 mg/kg Dermal LD50 Guinea pig

Product Information

LD50/oral/rat =

VALUE- Acute Tox Oral = 1540mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = 1260mg/kg

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat

VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = >2.68mg/l (4-hr.)

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:

Causes skin irritation. Mildly to moderately irritating to the skin. It can be absorbed through the skin.

Eye Contact:

Causes serious eye irritation. Causes moderate to severe eye irritation.

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Inhalation May cause respiratory tract irritation. May affect behavior/central nervous system. It may affect behavior/central nervous system (general anesthetic).

Ingestion Harmful if swallowed. May cause gastrointestinal tract irritation with nausea, cramps, diarrhea, vomiting, salivation. May affect behavior/central nervous system (general anesthetic, somnolence, uncontrollable muscle twitches, headache, giddiness, nervousness, weakness, loss of reflexes, convulsions, coma), vision (blurred vision), respiration (respiratory depression, excessive respiratory tract secretion), cardiovascular system (cardiac arrhythmias, various degrees of heart block, cardiac arrest, hypotension, bradycardia). Other symptoms may include miosis, sweating, cyanosis, discomfort in the chest, loss of sphincter control, metabolic acidosis, mild hypothermia.

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Skin: Prolonged or repeated skin contact can result irritation and significant absorption
Prolonged or repeated ingestion may affect the blood (pigmented or nucleated red blood cells)
Prolonged or repeated inhalation may affect the liver
Prolonged or repeated inhalation may affect the brain
Prolonged or repeated ingestion may cause weight loss

Sensitization: No information available

Mutagenic Effects: May affect genetic material
Sister Chromatid Exchange: Hamster ovary (RTECS)
Cytogenic analysis - hamster ovary

Carcinogenic effects: Not classifiable as to its carcinogenicity to humans.

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
gamma-Butyrolactone	Group 3 - Not Classifiable - Monograph 71 [1999] Supplement 7 [1987] Monograph 11 [1976]	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure central nervous system.
STOT - repeated exposure No information available
Target Organs: No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

gamma-Butyrolactone - 96-48-0

Freshwater Algae Data: 360 mg/L EC50 *Desmodesmus subspicatus* 72 h
79 mg/L EC50 *Desmodesmus subspicatus* 96 h

Freshwater Fish Species Data: 220-460 mg/L LC50 *Leuciscus idus* 96 h static 1

Water Flea Data: 500 mg/L EC50 *Daphnia magna* Straus 48 h

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
gamma-Butyrolactone	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: None
ERG No: No information available
Marine Pollutant: No data available
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

14. TRANSPORT INFORMATION

ADR

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available
IMDG Page: No information available
Marine Pollutant No information available
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Classification Code: No information available
Description: No information available

ICAO

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

IATA

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>gamma-Butyrolactone</i>	Present	Present KE-10674	Present	Present (5)-65 (5)-3337 (9)-137	Present	Present	Present 202-509-5

U.S. Regulations

gamma-Butyrolactone

FDA - 21 CFR - Total Food Additives Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>gamma-Butyrolactone</i>	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
<i>gamma-Butyrolactone</i>	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
<i>gamma-Butyrolactone</i>	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

D2B Toxic materials

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	Canada (DSL)	Canada (NDSL)
<i>gamma-Butyrolactone</i>	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
<i>gamma-Butyrolactone</i>	Not listed	Not listed

EU Classification

R-phrases)

R22 - Harmful if swallowed.

R36/38 - Irritating to eyes and skin.

S -phrase(s)

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S46 - If swallowed, seek medical advice immediately and show this container or label.

S37 - Wear suitable gloves.

Components	Classification	Concentration Limits:	Safety Phrases
gamma-Butyrolactone		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

Xn - Harmful.

Xi - Irritant.

Xn



Xi

**16. OTHER INFORMATION**

16. OTHER INFORMATION

Preparation Date: 06/04/2015
Revision Date: 06/04/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet