SPECTRUM®

GARDENA, CA
NEW BRUNSWICK, NJ

# Material Safety Data Sheet

| NFPA | HMIS | Personal Protective Equipment |
|---|---|---|
|  | Health Hazard 2<br>Fire Hazard 1<br>Reactivity 0 |  <br>See Section 15. |

## Section 1. Chemical Product and Company Identification



| | |
|---|---|
| **Common Name/ Trade Name** | **gamma-Butyrolactone** |
| **Manufacturer** | SPECTRUM LABORATORY PRODUCTS INC.<br>14422 S. SAN PEDRO STREET<br>GARDENA, CA 90248 |
| **Commercial Name(s)** | Agrisynth BLO |
| **Synonym** | 4-Butyrolactone; 1,2-Butanolide; 1,4-Butanolide;<br>2-Oxolanone; 4-Deoxytetronic acid;<br>4-Hydroxybutanoic acid lactone;<br>4-Hydroxybutanoic acid, gamma-lactone;<br>4-Hydroxybutyric acid lactone;<br>4-Hydroxybutyric acid, gamma-lactone;<br>Butyric acid lactone; Butyric acid, 4-hydroxy-, gamma-lactone |
| **Chemical Name** | Gamma-Butyrolactone; 2(3H)-Furanone, hihydro- |
| **Chemical Family** | Not available. |
| **Chemical Formula** | C4H6O2 |
| **Supplier** | SPECTRUM LABORATORY PRODUCTS INC.<br>14422 S. SAN PEDRO STREET<br>GARDENA, CA 90248 |

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| **Catalog Number(s).** | YY1572, B1198 |
| **CAS#** | 96-48-0 |
| **RTECS** | LU3500000 |
| **TSCA** | TSCA 8(b) inventory: gamma-Butyrolactone |
| **CI#** | Not available. |

**IN CASE OF EMERGENCY**
**CHEMTREC (24hr) 800-424-9300**

CALL (310) 516-8000

## Section 2.Composition and Information on Ingredients

| | | Exposure Limits | | | |
|---|---|---|---|---|---|
| **Name** | **CAS #** | **TWA ($mg/m^3$)** | **STEL ($mg/m^3$)** | **CEIL ($mg/m^3$)** | **% by Weight** |
| 1) {gamma-}Butyrolactone | 96-48-0 | | | | 100 |

**Toxicological Data on Ingredients**

**gamma-Butyrolactone**:
ORAL (LD50): Acute: 1540 mg/kg [Rat]. 1460 mg/kg [Mouse].
DERMAL (LD50): Acute: >5000 mg/kg [Guinea pig].
VAPOR (LC50): Acute: >5100 $mg/m^3$ 4 hours [Rat].

## Section 3. Hazards Identification

**Potential Acute Health Effects**

Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

**Potential Chronic Health Effects**

Slightly hazardous in case of skin contact (permeator).
**CARCINOGENIC EFFECTS**: 3 (Not classifiable for human.) by IARC.
**MUTAGENIC EFFECTS**: Not available.
**TERATOGENIC EFFECTS**: Not available.
**DEVELOPMENTAL TOXICITY**: Not available.

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## Section 4. First Aid Measures

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| **Eye Contact** | Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention. |
| **Skin Contact** | Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used. |
| **Serious Skin Contact** | Not available. |
| **Inhalation** | If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. |
| **Serious Inhalation** | Not available. |
| **Ingestion** | Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. |
| **Serious Ingestion** | Not available. |

## Section 5. Fire and Explosion Data

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| **Flammability of the Product** | May be combustible at high temperature. |
| **Auto-Ignition Temperature** | Not available. |
| **Flash Points** | OPEN CUP: 98.333℃ (209℉). |
| **Flammable Limits** | LOWER: 3.6% UPPER: 16% |
| **Products of Combustion** | These products are carbon oxides (CO, CO2). |
| **Fire Hazards in Presence of Various Substances** | Slightly flammable to flammable in presence of open flames and sparks, of heat.<br>Non-flammable in presence of shocks. |
| **Explosion Hazards in Presence of Various Substances** | Risks of explosion of the product in presence of mechanical impact: Not available.<br>Risks of explosion of the product in presence of static discharge: Not available. |
| **Fire Fighting Media and Instructions** | SMALL FIRE: Use DRY chemical powder.<br>LARGE FIRE: Use water spray, fog or foam. Do not use water jet. |
| **Special Remarks on Fire Hazards** | When heated to decomposition it emits acrid and irritating fumes.<br>Heat from fire can generate flammable vapor. When mixed with air and exposed to ignition sources, vapors can burn in open or explode if confined.<br>Vapors may be heavier than air. Vapor may travel considerable distance to source of ignition and flash back to vapor source |
| **Special Remarks on Explosion Hazards** | Potentially explosive reaction with butanol + 2,4-dichlorophenol + sodium hydroxide. |

## Section 6. Accidental Release Measures

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| **Small Spill** | Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements. |
| **Large Spill** | Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. |

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## Section 7. Handling and Storage

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| **Precautions** | Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, alkalis. |
| **Storage** | Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic |

## Section 8. Exposure Controls/Personal Protection

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| **Engineering Controls** | Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location. |
| **Personal Protection** | Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. |
| **Personal Protection in Case of a Large Spill** | Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. |
| **Exposure Limits** | Not available. |

## Section 9. Physical and Chemical Properties

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| **Physical state and appearance** | Liquid. (Oily liquid.) | **Odor** | Pleasant. (Slight.) |
| **Molecular Weight** | 86.09 g/mole | **Taste** | Not available. |
| **pH (1% soln/water)** | Not available. | **Color** | Colorless. Clear |

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| **Boiling Point** | 204℃ (399.2℉) |
| **Melting Point** | -43.53℃ (-46.4℉) |
| **Critical Temperature** | Not available. |
| **Specific Gravity** | 1.1286 @ 15 C(Water = 1) |
| **Vapor Pressure** | 0 kPa (@ 20℃) |
| **Vapor Density** | >3 (Air = 1) |
| **Volatility** | Not available. |
| **Odor Threshold** | 20-50 ppm |
| **Water/Oil Dist. Coeff.** | The product is more soluble in water; log(oil/water) = -0.6 |
| **Ionicity (in Water)** | Not available. |
| **Dispersion Properties** | See solubility in water, methanol, diethyl ether, acetone. |
| **Solubility** | Easily soluble in methanol, diethyl ether, acetone.<br>Soluble in cold water, hot water.<br>Very soluble in ethanol, benzene. |

## Section 10. Stability and Reactivity Data

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| **Stability** | The product is stable. |
| **Instability Temperature** | Not available. |
| **Conditions of Instability** | Excess heat, ignition sources (sparks, open flames), incompatible materials |
| **Incompatibility with various substances** | Reactive with oxidizing agents, acids, alkalis. |
| **Corrosivity** | Non-corrosive in presence of glass. |

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| **Special Remarks on Reactivity** | Hygroscopic; keep container tightly closed. |
| **Special Remarks on Corrosivity** | Not available. |
| **Polymerization** | Will not occur. |

## Section 11. Toxicological Information

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| **Routes of Entry** | Absorbed through skin. Eye contact. |
| **Toxicity to Animals** | **WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.**<br>Acute oral toxicity (LD50): 1460 mg/kg [Mouse].<br>Acute dermal toxicity (LD50): >5000 mg/kg [Guinea pig].<br>Acute toxicity of the vapor (LC50): >5100 mg/m$^3$ 4 hours [Rat]. |
| **Chronic Effects on Humans** | **CARCINOGENIC EFFECTS**: 3 (Not classifiable for human.) by IARC. |
| **Other Toxic Effects on Humans** | Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation. |
| **Special Remarks on Toxicity to Animals** | Not available. |
| **Special Remarks on Chronic Effects on Humans** | May affect genetic material (mutagenic).<br>May cause cancer based on animal test data |
| **Special Remarks on other Toxic Effects on Humans** | Acute Potential Health Effects:<br>Skin: Causes skin irritation. Mildly to moderately irritating. May be absorbed through skin and cause systemic effects<br>Eyes: Causes eye irritation. It can cause moderate to severe eye irritation.<br>Inhalation: May cause respiratory tract irritation.<br>Ingestion: May be 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 arrythmias, various degrees of heart block, cardia arrest, hypotension, bradycardia). Other symptoms may include miosis, sweating, cyanosis, discomfort in the chest, loss of sphincter control, metabolic acidosis, mild hypothermia.<br>Chronic Potential Health Effects:<br>Skin: Prolonged or repeated skin contact can result irritaiton and significant absorption.<br>Ingestion: Prolonged or repeated ingestion may affect the blood (pigmented or nucleated red blood cells, change in red blood cell count), metabolism (weight loss).<br>Inhalation: Prolonged or repeated inhalation may affect the brain (degenerative changes), and liver. |

## Section 12. Ecological Information

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| **Ecotoxicity** | Ecotoxicity in water (LC50): >5 mg/l 24 hours [Fish (Rainbow Trout)]. >5 mg/l 24 hours [Fish (Goldfish)]. 220-460 mg/l 96 hours [Fish (Leuciscus idus)]. >500 mg/l 48 hours [Daphnia (daphnia magna)]. 360 mg/l 72 hours [Algae (Desmodesmus subspicatus)]. 79 mg/l 96 hours [Algae (Desmodesmus subspicatus)]. |
| **BOD5 and COD** | Not available. |
| **Products of Biodegradation** | Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise. |
| **Toxicity of the Products of Biodegradation** | The products of degradation are less toxic than the product itself. |
| **Special Remarks on the Products of Biodegradation** | Not available. |

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## Section 13. Disposal Considerations

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| **Waste Disposal** | Waste must be disposed of in accordance with federal, state and local environmental control regulations. |

## Section 14. Transport Information

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| **DOT Classification** | Not a DOT controlled material (United States). |
| **Identification** | Not applicable. |
| **Special Provisions for Transport** | Not applicable. |
| **DOT (Pictograms)** |  |

## Section 15. Other Regulatory Information and Pictograms

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| **Federal and State Regulations** | TSCA 8(b) inventory: gamma-Butyrolactone |
| **California Proposition 65 Warnings** | California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.<br>California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found. |
| **Other Regulations** | EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances (EINECS No. 202-509-5).<br>Canada: Listed on Canadian Domestic Substance List (DSL).<br>China: Listed on National Inventory.<br>Japan: Listed on National Inventory (ENCS).<br>Korea: Listed on National Inventory (KECI).<br>Philippines: Listed on National Inventory (PICCS).<br>Australia: Listed on AICS.<br>OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). |
| **Other Classifications** | **WHMIS (Canada)**: CLASS D-2B: Material causing other toxic effects (TOXIC).<br>**DSCL (EEC)**: R22- Harmful if swallowed. R36/38- Irritating to eyes and skin. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S46- If swallowed, seek medical advice immediately and show this container or label. |

**HMIS (U.S.A.)**

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| Health Hazard | 2 |
| Fire Hazard | 1 |
| Reactivity | 0 |
| Personal Protection | h |

**National Fire Protection Association (U.S.A.)**


**WHMIS (Canada) (Pictograms)**

**DSCL (Europe) (Pictograms)**


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**TDG (Canada) (Pictograms)**

**ADR (Europe) (Pictograms)**

**Protective Equipment**

Gloves.

Lab coat.

Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Splash goggles.

## *Section 16. Other Information*

**MSDS Code** **B4230**

**References** Not available.

**Other Special Considerations**

Major Uses: Intermediate in the synthesis of polyvinylpyrrolidone, DL-methionine, piperidine, phenylbutyric acid, thiobutyric acids. Solvent for polyacrylonitrile, cellulose acetate, methyl methacrylate polymers, polystyrene. Constituent of paint removers, textile aids, drilling oils.
O'Neil, M.J. (ed.). The Merck Index - An Encyclopedia of Chemicals, Drugs, and Biologicals. Whitehouse Station, NJ: Merck and Co., Inc., 2006.., p. 260
Peer Reviewed
Intermediate in the synthesis of herbicides, growth regulators, alpha-acetobutyrolactone, the rubber additive thiodibutyric acid, as a polymerization catalyst, in hairwave compositions, sun lotions, pharmaceuticals, printing inks, as an extractant in the petroleum industry, as a stabilizer for chlorohydrocarbons and phosphorus-based pesticides, as a nematocide, and as a cosolvent for capacitor electrolytes and photoresists.
Schwarz W, Schossig J; Ullmann's Encyclopedia of Industrial Chemistry. 7th ed. (2005). NY, NY: John Wiley & Sons; Butyrolactone. Online Posting Date: June 15, 2000.
Peer Reviewed
Gamma-butyrolactone is a chemical solvent used in nail polish removers.
Ellenhorn, M.J., S. Schonwald, G. Ordog, J. Wasserberger. Ellenhorn's Medical Toxicology: Diagnosis and Treatment of Human Poisoning. 2nd ed. Baltimore, MD: Williams and Wilkins, 1997., p. 1103
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**CALL (310) 516-8000**

**Notice to Reader**

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