

MATERIAL SAFETY DATA SHEET

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Version 1.4

Section 1 - Product and Company Information

Product Name	BUTYRIC ACID, 99+%
Product Number	B103500
Brand	ALDRICH
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
BUTYRIC ACID	107-92-6	No
Formula	C4H8O2	
Synonyms	Butanic acid * Butanoic acid * Buttersaeure (German) * n-Butyric acid * Ethylacetic acid * Kyselina maselna (Czech) * 1-Propanecarboxylic acid * Propylformic acid	
RTECS Number:	ES5425000	

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Corrosive.
Causes burns.
Readily absorbed through skin. Stench. Target organ(s): Blood.
Combustible.

HMIS RATING

HEALTH: 3*
FLAMMABILITY: 2
REACTIVITY: 0

NFPA RATING

HEALTH: 3
FLAMMABILITY: 2
REACTIVITY: 0

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT

161.6 °F 72 °C Method: closed cup

EXPLOSION LIMITS

Lower: 2 % Upper: 10 %

AUTOIGNITION TEMP

440 °C

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Keep away from heat and open flame. Store in a cool dry place.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless Odor: Stench.	
Property	Value	At Temperature or Pressure
Molecular Weight	88.11 AMU	
pH	3	20 °C Concentration: 10 g/l
BP/BP Range	164 °C	760 mmHg
MP/MP Range	-7.9 °C	
Freezing Point	N/A	
Vapor Pressure	0.43 mmHg	20 °C
Vapor Density	3.04 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0.958 g/cm ³	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	1.61 Pas	20 °C
Surface Tension	26.74 mN/m	20 °C
Partition Coefficient	Log Kow: 0.79	
Decomposition Temp.	N/A	
Flash Point	161.6 °F 72 °C	Method: closed cup
Explosion Limits	Lower: 2 % Upper: 10 %	
Flammability	N/A	
Autoignition Temp	440 °C	
Refractive Index	1.399	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water: 50 mg/ml H ₂ O Other Solvents: ALCOHOL, ETHER	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Causes burns.

Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Blood.

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Can cause CNS depression.

TOXICITY DATA

Oral

Rat

8,790 mg/kg

LD50

Oral

Rat

2,940 mg/kg

LD50

1.4 H

Inhalation

Rabbit

400 mg/m³

Skin

Rabbit

6,083 mg/kg

LD50

Oral

Rat

2000 mg/kg

LD50

Intraperitoneal

Mouse

3180 MG/KG

LD50

Subcutaneous

Mouse

3180 MG/KG

LD50

Intravenous
Mouse
800 MG/KG
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.

Skin
Rabbit
530 UL/KG
LD50

IRRITATION DATA

Skin
Rabbit
Remarks: Corrosive.
Eyes
Rabbit
Remarks: Moderate irritation effect

Skin
Rabbit
500 mg
Remarks: Open irritation test

Skin
Rabbit
20 mg
24H
Remarks: Moderate irritation effect

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 3 MMOL/L
Cell Type: HeLa cell
Mutation test: DNA damage

Species: Human
Dose: 4 MMOL/L
Cell Type: lymphocyte
Mutation test: DNA inhibition

Species: Chicken
Dose: 2 MMOL/L
Cell Type: fibroblast
Mutation test: DNA damage

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Algae
Time: 72 h
Value: 47 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24 h
Value: 61.7 mg/l

Test Type: LC50 Fish

Species: Leuciscus idus
Time: 48 h
Value: 250 - 480 mg/l

Test Type: LC50 Fish
Species: Cyprinus carpio
Time: 48 h
Value: 65 mg/l

ADDITIONAL RESULTS/DATA FROM RELEVANT SCIENTIFIC EXPERIMENTS

Avoid contamination of the environment

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Butyric acid
UN#: 2820
Class: 8
Packing Group: Packing Group III
Hazard Label: Corrosive
PIH: Not PIH

IATA

Proper Shipping Name: Butyric acid
IATA UN Number: 2820
Hazard Class: 8
Packing Group: III

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: C
Indication of Danger: Corrosive.
R: 34
Risk Statements: Causes burns.
S: 26 36 45
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Corrosive.
Risk Statements: Causes burns.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements: Readily absorbed through skin. Stench. Target organ(s): Blood. Combustible.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.