

Material Safety Data Sheet

1-Butanethiol

ACC# 97105

Section 1 - Chemical Product and Company Identification

MSDS Name: 1-Butanethiol

Catalog Numbers: AC150800050, AC150800500, AC150801000, AC150802500, AC220620050, AC220620500 AC220620500

Synonyms: n-Butyl mercaptan; n-Butylthioalcohol.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
109-79-5	1-Butanethiol	98	203-705-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 12 deg C.

Warning! Flammable liquid and vapor. Causes eye and respiratory tract irritation. Stench. May be harmful if swallowed or inhaled. May cause central nervous system depression.

Target Organs: Central nervous system, eyes, reproductive system.

Potential Health Effects

Eye: Causes eye irritation. The liquid caused slight to moderate irritation to the eyes of rabbits.

Skin: May cause skin irritation. No dermal changes were observed when 0.2 ml of a 20% solution was applied to the clipped skin of guinea pigs for 10 days.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Mercaptans may cause nausea and headache. Exposure to high concentrations of mercaptans can produce unconsciousness with cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), cold extremities and rapid pulse. May be harmful if swallowed.

Inhalation: May cause respiratory tract irritation. Exposure to high concentrations of mercaptans can produce unconsciousness with cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), cold extremities and rapid pulse. Mercaptans may cause nausea and headache. Other central nervous system effects notes upon exposure to higher concentrations include sweating, vomiting, muscular weakness, malaise, confusion.

Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

Flash Point: 12 deg C (53.60 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower:N/A

Upper: N/A

NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1-Butanethiol	0.5 ppm TWA	500 ppm IDLH	10 ppm TWA; 35 mg/m ³ TWA

OSHA Vacated PELs: 1-Butanethiol: 0.5 ppm TWA; 1.5 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear, colorless

Odor: obnoxious odor - garlic-like odor - stench

pH: Not available.

Vapor Pressure: 45.5 mm Hg @ 25 deg C

Vapor Density: 3.1 (Air=1)

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 98 deg C @ 760 mm Hg

Freezing/Melting Point: -116 deg C

Decomposition Temperature: Not available.

Solubility: slightly soluble in water

Specific Gravity/Density: .8400 g/ml

Molecular Formula: C₄H₁₀S

Molecular Weight: 90.18

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Ignition sources, excess heat, confined spaces.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids.

Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 109-79-5: EK6300000

LD50/LC50:

CAS# 109-79-5:

Draize test, rabbit, eye: 83 mg;

Inhalation, mouse: LC50 = 2500 ppm/4H;

Inhalation, rat: LC50 = 4020 ppm/4H;

Oral, mouse: LD50 = 3 gm/kg;

Oral, rat: LD50 = 1500 mg/kg;

Carcinogenicity:

CAS# 109-79-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: Female mice and rats were exposed to n-butyl mercaptan for 6 hours/day on gestation days 6 to 16 for mice and days 6 to 19 for rats, at concentrations of 10, 68, or 152 ppm. Embryotoxic effects were noted in mice exposed at 68 and 152 ppm and weight losses were noted on days 12 through 17 of gestation. Also at 68 and 152 ppm, a statistically significant increase in early resorptions per litter was recorded. Effects were less severe in the exposed rats. Maternal weight increments were reduced at 152 ppm, and the incidence of fetal malformations was not considered biologically meaningful.

Mutagenicity: No information available.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: Volatilization is major fate process with possible leaching in the soil. Half-life in the atmosphere is 1.6 days. Slight biodegradation and no bioconcentration.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	BUTYL MERCAPTANS	BUTYL MERCAPTANS
Hazard Class:	3	3
UN Number:	UN2347	UN2347
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 109-79-5 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 109-79-5: immediate, fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 109-79-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols:

XN F

Risk Phrases:

R 11 Highly flammable.

R 21/22 Harmful in contact with skin and if swallowed.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

S 33 Take precautionary measures against static discharges.

S 36/37 Wear suitable protective clothing and gloves.

S 9 Keep container in a well-ventilated place.

WGK (Water Danger/Protection)

CAS# 109-79-5: No information available.

Canada - DSL/NDSL

CAS# 109-79-5 is listed on Canada's DSL List.

Canada - WHMIS

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 109-79-5 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information
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MSDS Creation Date: 9/23/1998

Revision #4 Date: 3/04/2004

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.