Section 1 - Product and Company Information

Product Name    1,4-BUTANEDITHIOL, 97%
Product Number  B85404
Brand           ALDRICH
Company         Sigma-Aldrich
Address         3050 Spruce Street
                SAINT LOUIS MO 63103 US
Technical Phone: 800-325-5832
Fax:             800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name                          CAS #                 SARA 313
1,4-BUTANEDITHIOL                       1191-08-8             No
Formula         C4H10S2

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Irritant.
Irritating to eyes, respiratory system and skin.
Stench.

HMIS RATING
HEALTH: 2
FLAMMABILITY: 1
REACTIVITY: 0

NFPA RATING
HEALTH: 2
FLAMMABILITY: 1
REACTIVITY: 0

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.

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 contact, immediately wash skin with soap and copious
amounts of water.
EYE EXPOSURE
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

FLASH POINT
235 °F  113 °C   Method: closed cup

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. 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): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.

SPECIAL REQUIREMENTS
Refrigerate before opening.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Mechanical exhaust required. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.
GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Physical State: Liquid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Color: Faintly yellow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Odor: Stench.</td>
<td></td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>122.25 AMU</td>
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<tr>
<td>pH</td>
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<tr>
<td>BP/BP Range</td>
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<td>30 mmHg</td>
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<tr>
<td>MP/MP Range</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Vapor Pressure</td>
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<td>Vapor Density</td>
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<td>Saturated Vapor Conc.</td>
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<td>Bulk Density</td>
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<tr>
<td>Odor Threshold</td>
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<td>Volatile%</td>
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<td>Water Content</td>
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<tr>
<td>Solvent Content</td>
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<tr>
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<td>Flash Point</td>
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<td>Explosion Limits</td>
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<td>N/A = not available</td>
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</table>

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Sulfur oxides.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled. 
Ingestion: May be harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE
Exposure can cause: Nausea, headache, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12 - Ecological Information
No data available.

Section 13 - Disposal Considerations
APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn 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: Aviation Regulated Liquid, N.O.S. 
UN#: 3334
Class: 9
Packing Group: Packing Group III
Hazard Label: Class 9
PIH: Not PIH

IATA
Proper Shipping Name: Aviation Regulated Liquid, N.O.S. 
IATA UN Number: 3334
Hazard Class: 9

Section 15 - Regulatory Information
EU ADDITIONAL CLASSIFICATION
Symbol of Danger: Xi
Indication of Danger: Irritant.
R: 36/37/38
Risk Statements: Irritating to eyes, respiratory system and skin.
S: 26-36
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Irritant.
Risk Statements: Irritating to eyes, respiratory system and skin.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.
US Statements: Stench.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No

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: No
NDSL: Yes

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 2006 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.