

Safety Data Sheet
according to 1907/2006/EC, Article 31

Revision: 13.07.2010

Printing date 13.07.2010

1 Identification of substance**Product details****Trade name****1-Butanethiol****Stock number:**

43421, L03026

Manufacturer/Supplier:Alfa Aesar GmbH & Co.KG
Benzstrasse 3
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com
www.alfa-chemcat.com**Informing department:**

Product safety department.

Emergency information:Giftnotruf Universität Mainz / Poison Information Center Mainz
www.giftinfo.uni-mainz.de Telefon:+49(0)6131/19240**2 Hazards identification****Hazard designation:**


 Xn Harmful
F Highly flammable
Information pertaining to particular dangers for man and environmentR 11 Highly flammable.
R 20/22 Harmful by inhalation and if swallowed.
R 36/37 Irritating to eyes and respiratory system.**GHS label elements**

Danger

H225 - Highly flammable liquid and vapour.


Warning
H302 - Harmful if swallowed.
H332 - Harmful if inhaled.
H319 - Causes serious eye irritation.
H335 - May cause respiratory irritation.**Prevention:**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/clothing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage:

P403 Store in a well-ventilated place.

3 Composition/information on ingredients**Chemical characterization:****Designation: (CAS#)**

1-Butanethiol (CAS# 109-79-5)

Identification number(s):

203-705-3

EINECS Number:**4 First aid measures****After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contactSeek immediate medical advice.
Instantly wash with water and soap and rinse thoroughly.**After eye contact**

Seek immediate medical advice.

After swallowingRinse opened eye for several minutes under running water. Then consult doctor.
Seek immediate medical advice.**5 Fire fighting measures****Suitable extinguishing agents**CO₂, sand, extinguishing powder. Do not use water.**For safety reasons unsuitable extinguishing agents**

Water.

Special hazards caused by the material, its products of combustion or flue gases:Can be released in case of fire:
Carbon monoxide and carbon dioxide
Sulphur oxides (SO_x)**Protective equipment:**Wear self-contained breathing apparatus.
Wear full protective suit.**6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Measures for environmental protection:

Ensure adequate ventilation

Keep away from ignition sources

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to item 13.

Ensure adequate ventilation.

Keep away from ignition sources.

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

Additional information:**7 Handling and storage****Handling****Information for safe handling:**Handle under dry protective gas.
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.**Information about protection against explosions and fires:**Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.**Storage****Requirements to be met by storerooms and containers:**

Store in cool location.

Information about storage in one common storage facility:Store away from oxidizing agents.
Store away from air.**Further information about storage conditions:**Store under dry inert gas.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

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This product is air sensitive.

8 Exposure controls and personal protection**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with critical values that require monitoring at the workplace:

1-Butanethiol
ppm
ACGIH TLV 0.5
Denmark TWA 0.5
Finland TWA 0.5; 1.5-STEL
France TWA 0.5
Germany TWA 0.5
Ireland TWA 0.5
Netherlands TWA 0.5
Switzerland TWA 0.5; 1-STEL
USA PEL 10

Components with critical values that require monitoring at the workplace:**Additional information:**

No data

Personal protective equipment**General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.
Keep away from foodstuffs, beverages and food.
Instantly remove any soiled and impregnated garments.
Wash hands during breaks and at the end of the work.
Use breathing protection with high concentrations.
Safety glasses
Face protection
Protective work clothing.

Breathing equipment:**Eye protection:****Body protection:****9 Physical and chemical properties:****General Information**

Form: Liquid
Colour: Colourless
Smell: Stench

Change in condition

Melting point/Melting range: -116°C
Boiling point/Boiling range: 98°C
Sublimation temperature / start: Not determined

Flash point: 2°C**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Critical values for explosion:**

Lower: Not determined
Upper: Not determined

Steam pressure at 37°C: 110 hPa**Density at 20°C:** 0.842 g/cm³**Solubility in / Miscibility with Water at 20°C:** 0.59 g/l**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:****Materials to be avoided:**

No decomposition if used and stored according to specifications.
Light
Oxidizing agents
Bases
Alkali metals
Air

Dangerous reactions:**Dangerous products of decomposition:**

No dangerous reactions known
Carbon monoxide and carbon dioxide
Sulphur oxides (SOx)

11 Toxicological information**Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	3000 mg/kg (mouse) 1500 mg/kg (rat)
Inhalative	LC50/4H	15100 mg/m ³ /4H (rat)

Primary irritant effect:**on the skin:**

Irritant for skin and mucous membranes.

on the eye:

Irritant effect.

Sensitization:

No sensitizing effect known.

Additional toxicological information:

May cause harm to the unborn child.
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information:**Additional ecological information:****General notes:**

Do not allow product to reach ground water, water bodies or sewage system.
Water hazard class 2 (Self-assessment): hazardous for water.
Danger to drinking water if even small quantities leak into soil.
Do not allow material to be released to the environment without proper governmental permits.

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13 Disposal considerations

Product:
Recommendation Consult state, local or national regulations for proper disposal.
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14 Transport information**Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**

ADR/RID-GGVS/E Class: 3 (F1) Flammable liquids.
Kemler Number: 33
UN-Number: 2347
Packaging group: II
Label: 3
Designation of goods: 2347 BUTYL MERCAPTANS
Limited quantities (LQ) LQ4
Transport category 2
Tunnel restriction code D/E

Maritime transport IMDG/GGVSea:

IMDG/GGVSea Class: 3
UN Number: 2347
Label: 3
Packaging group: II
Marine pollutant: No
Correct technical name: BUTYL MERCAPTANS

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 3
UN/ID Number: 2347
Label: 3
Packaging group: II
Correct technical name: BUTYL MERCAPTANS

UN "Model Regulation": UN2347, BUTYL MERCAPTANS, 3, II

15 Regulatory information**Designation according to EC guidelines:**

Code letter and hazard designation of product:



Xn Harmful
F Highly flammable

Risk phrases: 11 Highly flammable.
20/22 Harmful by inhalation and if swallowed.
36/37 Irritating to eyes and respiratory system.

Safety phrases: 9 Keep container in a well-ventilated place.
16 Keep away from sources of ignition - No smoking.
23 Do not breathe fumes.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36 Wear suitable protective clothing.

National regulations

Information about limitation of use: Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.

Water hazard class: Water hazard class 2 (Self-assessment): hazardous for water.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing data specification sheet: Health, Safety and Environmental Department.

Contact: Zachariah Holt

Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent