

## GHS Classification

**ID919**

**1-Butanethiol**

**CAS 109-79-5**

Date Classified: Jun. 20, 2006 (Environmental Hazards: Mar. 31, 2006)

**Physical Hazards**

Reference Manual: GHS Classification Manual (Feb. 10, 2006)

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Explosives	Not applicable	-	-	-	There are no chemical groups associated with explosive properties present in the molecules.
2 Flammable gases	Not applicable	-	-	-	Liquid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Liquid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Liquid (GHS definition)
6 Flammable liquids	Category 2	Flame	Danger	Highly flammable liquid and vapour	Flash point: <23degC, Initial boiling point: >35degC, UNRTDG Class: 3, PG II
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
9 Pyrophoric liquids	Not classified	-	-	-	UNRTDG Class: 3
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Classification not possible	-	-	-	Test methods applicable to liquid substances are not available
12 Substances and mixtures, which in contact with water, emit flammable gases	Not applicable	-	-	-	The chemical structure of the substance does not contain metals or metalloids(B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At).
13 Oxidizing liquids	Not applicable	-	-	-	Organic compounds containing no oxygen, fluorine and chlorine.
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Not classified	-	-	-	UNRTDG Class: 3

## Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 4	Exclamation mark	Warning	Harmful if swallowed	SPECIES: Rat ENDPOINT: LD50 VALUE: 1500 mg/kg, 1800 mg/kg REFERENCE SOURCE: PATTY (4th, 1994).
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rabbit LD50 value: >34600mg/kg (PATTY 4th, 1994), it was set as the outside of Category.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 4	Exclamation mark	Warning	Harmful if inhaled	Lower value was adopted from rat LC50 (4 hours): 4020ppm (equivalent 14.8mg/L) (ACGIH 7th, 2001, PATTY 4th, 1994) and 6060ppm (equivalent 22.31mg/L). 4020ppm considered as steam with almost no mist from the vapor pressure. And it was classified as Category 4 by the ppm concentration.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	It was set as Category 3 from description that mild to moderate erythema was acknowledged until three - four days later in the test applied to the skin of the rabbit (PATTY (4th, 1994)).
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	We classified it as Category 2B based on the description that the stimulative reaction continued until after four days at the maximum in the test applied to the eyes of the rabbits (PATTY (4th, 1994)).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory organ: No data. Skin : Based on the description that sensitizing property was not indicated in the guinea pigs in PATTY (4th, 1994), there was possibility that it was Out Of Category, however, test method was not indicated, therefore we presupposed that we could not classify it for the insufficiency of data.
5 Germ cell mutagenicity	Classification not possible	-	-	-	Classification not possible due to lack of data
6 Carcinogenicity	Classification not possible	-	-	-	No data available
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	It was considered as Category 2 based on the description that the significant increase in early embryo absorption was observed at the dose in which general toxicity is observed in parental animals in an inhalation exposure examination using the mouse pregnancy (ACGIH (7th, 2001), PATTY (4th, 1994)).

8	Specific target organs/systemic toxicity following single exposure	Category 2 (blood system); Category 3 (respiratory tract irritation, narcotic effects)	Health hazard; Exclamation mark	Warning	May cause damage to organs (blood system); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation, narcotic effects)	It was set as Category 2 (blood) from description in PATTY (4th, 1994) that hemolytic anemia was seen at guidance value within Category 2 in the oral study using chicken. Moreover, from description in ACGIH (7th, 2001) and PATTY (4th, 1994) of the inhalation exposure test using rats and mice, description in PATTY (4th, 1994) that the respiratory irritation influence and influence on the central nervous system were seen in oral and dermal administration examinations using rats, and description that transient central nervous system depressions was seen in human accident exposure. So it was judged that affects on the central nervous system was temporary, and was set as Category 3 (respiratory irritation, anesthesia action).
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Although there was description that toxicity was not observed in the inhalation exposure test for 90 days using the rat (PATTY (4th, 1994)), there was no other data and we presupposed that we could not classify it since the data was too insufficient to judge it to be Out Of Category.
10	Aspiration hazard	Classification not possible	-	-	-	No data available

### Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Not classified	-	-	-	It carried out the outside of Category from 96-hour LC50=1100000microg/L of fishes (American catfish) (AQUIRE, 2003).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (aqueous solubility =597mg/L(PHYSROP Database, 2005)) and acute toxicity is low.