

GHS Classification

ID900

Ether, bis(2-chloroethyl)-

CAS 111-44-4

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	Classification not possible (Category 3 or Category 4)	Flame	Warning	Flammable liquid and vapour; Combustible liquid	Flash point data available from materials are distributed in both Category 3 and 4. Therefore, if the flash point is not measured with a real sample, it cannot be judged. The acceptance criteria are as follows: Category 3: 23 degC<= flash point <=60 degC; Category4: 60 degC< flash point <=93 degC
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	-	-	-	Flash point: 365degC (Hommel, 1991 Card No.473)
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	-	-	-	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
13 Oxidizing liquids	Not applicable	-	-	-	Organic compounds containing chlorine (but not oxygen and fluorine) chemically bonded only to carbon and hydrogen (but not to other elements).
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: 6.1, Subsidiary risks Class: 3

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Category 3 based on SPECIES: Rat; ENDPOINT: LD50; VALUE: :75mg/kg; , 105mg/kg and 150mg/kg; REFERENCE SOURCE: PATTY 4th (1994)
1 Acute toxicity (dermal)	Category 3	Skull and crossbones	Danger	Toxic in contact with skin	It was set as Category 3 based on rabbit LD50 value: 870mg/kg (ATSDR, 1989).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 1	Skull and crossbones	Danger	Fatal if inhaled	Based on Rat LC50 (4 hours) value: 20 ppm (CaPSAR, 2005), it could be judged from vapor pressure as the steam with almost no mist, and classified by the ppm concentration standard as Category 1.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	It was set as Category 2 from description that irritation was admitted in the test applied to the skin of the rabbit (ATSDR (1989)).
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	We classified it as Category 2B based on the descriptions that moderate ocular change was acknowledged which recovers within 24 hours in the tests applied to the eyes of the rabbits (ACGIH (7th, 2001) and PATTY (4th, 1994)).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory organ: No data. Skin: Since data was insufficient, we could not classify it.
5 Germ cell mutagenicity	Classification not possible	-	-	-	There is a negative result (IARC 71, 1999, ATSDR, 1989) by joint examination with rat liver DNA which is an in vivo genotoxicity study using a somatic cell, and there is no positive finding of several indices by an in vitro mutagenicity test. So it cannot classify.
6 Carcinogenicity	Not classified	-	-	-	It was classified into B-2 (IRIS, 2005) in EPA (1994) and category 3 (EU-Annex I, 2005) in EU. But it was classified into a group 3 (IARC 71, 1999) in IARC and A4 (ACGIH 7th, 2001) in ACGIH. So it was considered as the outside of Category according to ACGIH which is latest assessment document, .
7 Toxic to reproduction	Classification not possible	-	-	-	No data available

8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory organs); Category 3 (narcotic effects)	Health hazard; Exclamation mark	Danger; Warning	Cause damage to organs (respiratory organs); May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects)	From description in ACGIH (7th, 2001), PATTY (4th, 1994), CaPSAR (2005), ATSDR (1989), Society for Occupational Health Recommendation of Occupational Exposure (1993), and IARC 71 (1999) that the violent irritation against respiratory tracts is seen in humans, and from description in ACGIH (7th, 2001), PATTY (4th, 1994), and ATSDR (1989) that death from lung damage was seen in the inhalation exposure test using guinea pigs. So it was set as Category 1 (respiratory tracts) . Moreover, description in Society for Occupational Health Recommendation of Occupational Exposure (1993) that an anesthetic actions is seen in high concentrations, and from description in PATTY (4th, 1994) and ATSDR (1989) that unconsciousness was seen in the inhalation exposure test using guinea pigs. So it was set as Category 3 (anesthetic actions).
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Based on the description that toxicity was not observed with the concentration of the guidance value range of Category 2 in the inhalation exposure test for 130 days using the rats and guinea pigs (ACGIH (7th, 2001), PATTY (4th, 1994) and ATSDR (1989)), there was a possibility that it was Out Of Category, however, it was the examination of only single exposure concentration, so relation between dosage and toxicity etc. otherwise is not clear, and there is no such description that data and hazards are very low that clearly reports hazardousness, therefore we presupposed that we could not classify since the data is insufficient.
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>100mg/L of fishes (<i>Oryzias latipes</i>) (MOE eco-toxicity tests of chemicals, 1996).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (water solubility=17200mg/L(PHYSPROP Database, 2005)) and acute toxicity is low.