

GHS Classification

ID666

Ethane, 1,1'-oxybis

CAS 60-29-7

Date Classified: Jul. 24, 2006 (Environmental Hazards: Feb. 10, 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 1	Flame	Danger	Extremely flammable liquid and vapour	Category 1 because of its flash point: -45degC, boiling point: 34.6degC (ICSC, 2004) and UNRTDG No. 2363, Class: 3, PGI
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: 160-190degC (ICSC (J), 2005; Merck, 13th, 2001)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Not classified because of UNRTDG Class: 3
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 oxygen (but not chlorine and fluorine) chemically bonded only to carbon (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Organic compounds containing no -O-O- structure
16 Corrosive to metals	Classification not possible	-	-	-	Test methods applicable to gas substances are not available

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	The lower one is adopted among 1215-2450 mg/kg (DFGOT vol.13 (1999)) in rats and 1207 to 1704 mg/kg (PATTY (5th, 2005)). It was set as Category 4 based on LD50= 1207mg/kg.
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Not classified	-	-	-	Based on LD50 = 45625ppm, which is converted value for 4 hours of LC50 for 150 minute rat test = 73000ppm(DFGOT vol.13 (1999)), it was classified as out of Category.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	Any inhalation study is done at the concentration lower than the saturated vapor pressure pressures concentration, and there is no data of mists.
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	There is a result of having no skin stimulativeness in rabbit test (DFGOT vol.13 (1999)). However, on the other hand, there is also a description of mild irritativeness in a rabbit test (RTECS (2005)). Although severe irritation is reported for guinea pig test (RTECS (2005)), it was 24 hour exposure test, and it was regarded as a reference. Based on two examinations on rabbits and EU R phrase: Xn; R66, it was classified as Category 3.
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	It was set as Category 2B based on the mild reversible stimulus being indicated by two examinations of a rabbit (DFGOT vol.13 (1999)).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	Respiratory sensitization: No data Skin sensitization: Although skin sensitization was not identified by the examination of the guinea pigs(DFGOT vol.13 (1999)), since there is a statement that the reliability of this examination is questionable, it was decided that it could not be classified due to the insufficiency of data.
5 Germ cell mutagenicity	Classification not possible	-	-	-	It gave negative in the in vitro mutagenicity test (the reverse mutation test using bacteria, the chromosomal aberration test using the mammalian cultured cells) (DFGOT vol.13 (1999)), however, we found no in vivo test data. Therefore we presupposed that we could not classify it by the technical guideline.
6 Carcinogenicity	Classification not possible	-	-	-	Classification not possible due to lack of data

7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Since although maternal toxicity is not indicated, fetal absorption was observed in rats (IUCLID (2005)), embryonic cleft palates increased (DFGOT vol.13 (1999)), fetal head length decreased in mice (DFGOT vol.13 (1999)), and abnormalities of fetal figure, internal organs and scaffold were observed in rats and mice(DFGOT vol.13 (1999)), it was classified into Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 3 (narcotic effects, respiratory tract irritation)	Exclamation mark	Warning	May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects, respiratory tract irritation)	There is no description about toxic symptom in animal test. There is the respiratory irritation in the case of using it as anesthetics to human (DFGOT vol.13 (1999), PATTY (5th, 2005), IUCLID (2005)). So it is classified into Category 3 (anesthetic action, respiratory irritation).
9	Specific target organs/systemic toxicity following repeated exposure	Not classified	-	-	-	Toxicity is not discovered to specific organs with the concentration of all exceeded the guidance value of Category 2 in test using rats (IRIS (2005), DFGOT vol.13 (1999)). Although in humans some neurological symptoms were discovered, since it was concluded that all were transient, it carried out the outside of Category.
10	Aspiration hazard	Category 2	Health hazard	Warning	May be harmful if swallowed and enters airways	Category 2 because of "possible to be classified into Aspiration hazard (ICSC)"

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 48-hour LC50=1378.63mg/L of Crustacea(Daphnia magna) (ECETOC TR91, 2003).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (aqueous solubility =60400 mg/L (PHYSROP Database, 2005)) and acute toxicity is low.