

GHS Classification

ID649

Propane, 2,2'-oxybis-

CAS 108-20-3

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	Category 2 because of its flash point: -21.5 - -28degC, boiling point: 68.27 - 69degC
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: 405-443degC (IUCILID , 2000; Chapman (CD-ROM Ver.13.1)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Not classified because of UNRTDG Class: 3, PG II
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	-	-	-	No data available

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	-	-	-	From LD50 value in 5 oral administration examinations (ACGIH (2001), PATTY (5th, 2001)) of rats, it was set as the outside of Category. This is based on LD50=6033 mg/kg calculated by the process of technical guides.
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rabbit LD50 value = 20mL/kg (RTECS (2004), reduced value:14600mg/kg) and 20000mg/kg (IUCILID (2000)), it was set as the outside of Category.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Not classified	-	-	-	The saturated vapor pressure concentration of this product is 197000ppm. Each inhalation test is done by 90% or less of saturated vapor pressure concentration, it is thought that the test was done with vapor. Since the rat lethal concentration in 4-hour exposure is stated to be 1.6% (equivalent: 16000ppm) (PATTY (5th, 2001)), LC50 value was supposed to be more than 16000ppm, and it was classified as outside of Category.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	There is a description that it caused dermatitis with repetitive administration for ten days, but it was reversible (ACGIH (2001), IUCILID (2000), HSDB (2003)), and there is description that dermal reaction of rabbits in Open irritation test was "mild" (RTECS (2004)). So it was classified as Category 3.
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	Based on the statement that irritation was acknowledged (IUCILID (2000)) and "minor injury" was produced (HSDB (2003)) in rabbit tests, and based on the statement that irritation was acknowledged in the eye by 800ppm and 5 min in humans, it was set as Category 2A-2B (ACGIH (2001)).
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)-	No data available
5 Germ cell mutagenicity	Classification not possible	-	-	-	We found a negative result by the in vitro test (IUCILID (2000)), however, we found no in vivo data. Therefore we could not classify it for the insufficiency 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	Since there was description that no general toxicity effect on parental animals but it is observed effects on estrous cycle, pregnancy rate and conception rate in rat (RTECS (2004)), it was classified into Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 2 (central nervous system); Category 3 (respiratory tract irritation, narcotic effects)	Health hazard; Exclamation mark	Warning	May cause damage to organs (central nervous system); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation, narcotic effects)	There is the description that the inhalation in high concentration to human may cause central nerve inhibition and death by respiratory paralysis (HSDB (2003)), and it is classified into Category 2 (central nervous system). There is the description that it stimulates human nose and make it difficult to breathe (PATTY (5th, 2001), ACGIH (2001)), and the description about the anesthetic action in animals (PATTY (5th, 2001)). So it is classified into Category 3 (respiratory irritant, anesthetic action).
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Although there is a statement that abnormalities were not acknowledged with the amount of exposure higher than the upper limit of the guidance value range of Category 2 in the 90-day exposure tests for 6 hours per day (HSDB (2003)), it was presupposed to be unclassifiable because of insufficient data of only one data in Priority 2.
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)	Category 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 96-hour LC50=91.7mg/L of fishes (Fathead minnows) (ECETOC TR91, 2003).
11 Hazardous to the aquatic environment (chronic)	Category 3	-	-	Harmful to aquatic life with long lasting effects	Classified into Category 3, since acute toxicity was Category 3 and not rapidly degrading (BOD: 0% (existing chemical safety inspections data)), though less bio-accumulative (log Kow=1.52(PHYSROP Database, 2005)).