

GHS Classification

ID586

Ethane, 1,2-dibromo-

CAS 106-93-4

Date Classified: Jul. 24, 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	Not classified	-	-	-	Non-combustible (Hommel, 1991).
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	-	-	-	Non-combustible (Hommel, 1991)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	Non-combustible (Hommel, 1991)
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: 6.1, PGI

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	Rat LD50 values of 146 mg/kg (male), 117 mg/kg (female), and 140 mg/kg (male and female) (EHC 177 (1996)) corresponded to classification target, and it was set as Category 3 based on the lowest value of 117 mg/kg.
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= 450mg/kg (EHC 177 (1996)).
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 2	Skull and crossbones	Danger	Fatal if inhaled	Rat LC50 value 2.304mg/L and 4.620mg/L (4-hour equivalent of 2.31mg/L) (EHC 177 (1996)) corresponded as subjects of classification. Both were equivalent to about 300ppm, and it was classified as Category 2 with the application of the gaseous classification Category. [saturated vapor pressure concentration: 10 ⁶ (6) *1.5 / 101(kPa) = 14851ppm]
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Although significant irritation accompanied by erythema and edema which progress to necrosis and eschar was observed with repetitive application on shaved rabbit abdominal, it is described that it recovered completely within seven days after the end of exposure (EHC 177 (1996)). On humans, from the results of single exposure test on skin, it is judged to have serious stimulativeness (IUCIID (2000)), and other reports indicate severe irritation (EHC 177 (1996), PATTY (5th, 2001), ATSDR (1992)). From these information, this product may result in corrosion. So it was judged to have severe irritation, it was classified as Category 2.
3 Serious eye damage / eye irritation	Category 2	Exclamation mark	Warning	Causes serious eye irritation	There is irritation on the conjunctiva and necrotic slight for corneal surfaces by rabbits eye drops, it did not bequeath injury 12 days afterward, and had recovered completely (EHC 177 (1996)). Moreover, it is indicated that there is ocular severe irritation in humans (EHC 177 (1996)). Since it was judged that it had the moderates irritation from these information to an eye, it was set as Category 2.
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 there is a report (BUA 66 (1991)) which suggests sensitizing by humans, it cannot be said that the accuracy as a proof is sufficient, and since data is insufficient, it cannot be classified..

5	Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	There are positive results from the DNA damage test using rat testicular cells (in vivo genotoxicity test in germ cells) and from several DNA damage tests and DNA binding tests using somatic cells such as hepatocytes from rats or mice (in vivo genotoxicity test in somatic cells) (IARC 71(1999), EHC 177(1996)). Furthermore, there are positive results in several parameters for the in vitro mutagenicity tests (IARC 71(1999), EHC 177(1996)). The substance was classified as Category 2 based on the above results.
6	Carcinogenicity	Category 1B	Health hazard	Danger	May cause cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)	It was set as Category 1B based on being classified into 2A (2002) according to industrial hygiene society, and being classified into 2A (1999) according to IARC, respectively.
7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	There is the report about the failure of pregnancy in the mating between the male rat exposed with ten-week inhalation and the female rat no processing, and the decrease of mating formation in the mating between the female rat exposed with three-week inhalation and the male rat no processing (EHC 177(1996)). Since general toxicity (reduced weight gain, dead) occurs spontaneously in the dose causing these effects, it is classified into the Category 2.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (liver, kidneys, central nervous system); Category 3 (respiratory tract irritation)	Health hazard; Exclamation mark	Danger; Warning	May cause damage to organs (liver, kidneys, central nervous system); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	Due to the descriptions that the liver fatty metamorphosis, centrilobular necrosis, and proximal convoluted tubules of kidneys were observed by suicide attempt or mistaking (EHC 177(1996), PATTY (5th, 2001), IARC 71(1999), ACGIH (2001), BUA 66 (1991)), and that centrilobular fatty change degenerations and necrosis in hepatic and renal tubule edema in liver were observed also in rat (EHC 177 (1996)). So it was classified into Category 1 (liver, kidney). Moreover, due to the descriptions that there are some reports which mistaking for the anesthetic in humans caused poisoning (ACGIH (2001), BUA 66 (1991)), furthermore, that it affects to central nervous systems and causes an awareness decreases is caused (ICSC (1993)), it was classified into Category 1 (central nervous system). In addition, it also classified into Category 3 (respiratory irritant) according to the description which also has irritation in airways (EHC 177 (1996), ICSC (1993)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (respiratory organs, liver, kidneys)	Health hazard	Warning	May cause damage to organs (respiratory organs, liver, kidneys) through prolonged or repeated exposure	It was classified in Category 2 (respiratory tracts) based on statements that not only stimulative to the pharynx and a bronchus (PATTY (5th, 2001)), but also lungs damage and bronchitis were affected in humans by occupational exposure (ICSC (1993)), and statements that a necrosis and atrophy of olfactory epithelium in nasal cavity, dysplasia, hyperplasia, and gigantocellularis of a squamous epithelium cell in a respiratory tract were seen in inhalation exposure of rats or mouse with the concentration (0.577 mg/L) equivalent to the guidance value Category 2 (EHC 177 (1996)). Moreover, a potential that humans will also affect liver and the kidney as effect of long-term or repeated exposure is suggested (ICSC (1993)), and inhalation exposure of a guinea pigs with the concentration (0.385 mg/L (50 ppm) (80 days) (the equivalent on the 90 days: 0.342 mg/L)) as equivalent to the guidance value Category 2, mild centrilobular fatty degeneration in liver, interstitial congestion and edema in the kidney were observed (EHC 177 (1996)). On this bases, it was classified in Category 2 (liver, kidney).
10	Aspiration hazard	Classification not possible	-	-	-	Insufficient 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=32.1mg/L of fishes (<i>Oryzias latipes</i>) (ECETOC TR91, 2003).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Based on NOEC=5.81 mg/L during 28 days for the fish (<i>Oryzias latipes</i>) (ECETOC TR91, 2003), though acute toxicity was Category 3.