

GHS Classification

ID855

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-

CAS 76-13-1

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	-	-	-	Flash point: none (Lange, 14th, 1992), non-combustible (Solvent Pocket Book, 1994), or flame-retardant (Hommel, 1991, Card No.199)
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	-	-	-	They are nonflammables or flame retardants. (a pocket book books (1994), Hommel (1991) Card No.199)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	They are nonflammables and flame retardants. (solvent pocket book (1994), Hommel (1991) Card No.199)
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 chlorine and fluorine (but not oxygen) and these elements are 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	-	-	-	Non-corrosive to metals (Solvent Pocket Book, 1994)

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Not classified	-	-	-	Based on rat LD50 value: 43g/kg (ACGIH, 7th (2001), Japan Society for Occupational Health advice (1993), DFGOT vol.3 (1999), CERH Hazard Data, (1999), RTECS (2005), IUCID (2000)), it was set as the outside of Category.
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on the data that lethal dose of rabbits is 11000mg/kg or exceeds it (ACGIH (2991), CERH Hazard Data (1999), and RTECS (2005), 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	-	-	-	Based on calculated value = 397.68mg/L, it was judged as LC50 value with exposure to vapor with almost no misc. Standard values for ppm concentrations was applied, and it was classified as out of Category. 397.68mg/L is statistically calculated value from 3 rat LC50 values (4 hour exposure): 52000ppm (Industrial Hygiene Society (1993) and CERH Hazard Data (1999)), 52500ppm (EHC 113 (1990)), 68000ppm (Industrial Hygiene Society (1993) and CERH Hazard Data (1999)) (since the statistically calculated value was lower than the lowest value of the data, adopted the lowest data of 52000ppm.)
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Category 3	-	Warning	Causes mild skin irritation	Based on description that mild irritation was admitted in the skin irritation study by the Draize method (24-hour exposure) in a rabbit (CERH Hazard Data, 1999), it was set to Category 3.
3 Serious eye damage / eye irritation	Not classified	-	-	-	Since in the test using a rabbit, irritation was not reached the acceptance criteria (DFGOT vol.3, 1999), and was not seen (CERH Hazard Data in 1999), it was set as the outside of Category.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible; Skin sensitization: Classification not possible	-	-	-	Respiratory organ: No data. Skin: Although it showed negative for the Maximization method in the guinea pigs (CERH Hazard Data, 1999), we presupposed that it could not be classified for the insufficiency of data, since there was no description which otherwise negates skin sensitization clearly.
5 Germ cell mutagenicity	Not classified	-	-	-	There are descriptions of negative result with dominant lethal test on mice, which is an in vivo generation mutagenicity test using germ cells, (EHC 113 (1990), ACGIH (7th, 2001), DFGOT vol.3 (1999), and CERH Hazard Data (1999)), and there is no report of in vivo examination. So it was classified as out of Category.
6 Carcinogenicity	Not classified	-	-	-	Since it was classified into A4 in ACGIH (ACGIH 7th, 2001), it was considered as the outside of Category.

7	Toxic to reproduction	Not classified	-	-	-	It was considered as out of Category based on the description that it is not observed effects on embryotoxicity/fetotoxicity and teratogenicity in rat organogenetic period inhalation exposure test at dose causing general toxicity to maternal animal (EHC 113 (1990)), ACGIH (7th, 2001), in the description with CERH Hazard Data (1999)), and the description of no abnormality in standard reproductive items in the rat inhalation exposure one-generation reproductive test) (EHC 113 (1990), ACGIH (7th, 2001), CERH Hazard Data (1999)).
8	Specific target organs/systemic toxicity following single exposure	Category 3 (respiratory tract irritation, narcotic effects)	Exclamation mark	Warning	may cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation, narcotic effects)	In volunteers or accidents by evidence of exposure on humans, description that the symptoms accompanied to the transient reduction of psychomotoricite, drowsiness, dizziness, memory impairments, symptoms accompanied to the anesthesia action etc., respiratory irritation was acknowledged (EHC 113 (1990), DFGOT vol.3 (1999)), and from the description that respiratory irritant and anesthetic actions were acknowledged inhalation exposure in a rat, a guinea pig, and a dog (ACGIH (7th, 2001)), DFGOT vol.3 (1999) and CERH Hazard Data (1999)). So it was set as Category 3 (respiratory irritation, anesthesia action) .
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system, liver)	Health hazard	Danger	Causes damage to organs (central nervous system, liver) through prolonged or repeated exposure	Based on the description that in humans of the long term occupational exposure, neuropsychological symptoms, disability in the psychological work tests, and the liver dysfunctions accompanied by fatty infiltrations in the liver were observed (industrial hygiene society recommendation(1994), CERH Hazard Data(1999)), it was classified into Category 1 (central nervous systems, liver).
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 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 48-hour EC50=4290microg/L of Crustacea (Daphnia magna) (MOE Risk Assessment No.3, 2004).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Classified into Category 2, since acute toxicity was Category 2 and not rapidly degrading (BOD: 2% (existing chemical safety inspections data)), though less bio-accumulative (BCF=86 (existing chemical safety inspections data)).