

GHS Classification

ID397

trans-1,2-Dichloroethylene

CAS 156-60-5

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	—	—	—	Containing no chemical groups with explosive properties
2 Flammable gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
6 Flammable liquids	Category 2	Flame	Danger	Highly flammable liquid and vapour	The flash point is 2-4degC (c.c.) (ICSC (2003)) and the boiling point is 48.7degC (Lide (84th, 2003)), which is classified into Category 2. Classified as Class 3 and Packing Group II (UN#1150: 1,2-dichloroethylene) (UN Recommendations on the Transport of Dangerous Goods)
7 Flammable solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not classified	—	—	—	No data available, though containing unsaturated bonds. Classified as Class 3 (UN#1150: 1,2-dichloroethylene) (UN Recommendations on the Transport of Dangerous Goods)
9 Pyrophoric liquids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 460degC (1,2-dichloroethylene (ICSC, 2003)).
10 Pyrophoric solids	Not applicable	—	—	—	Classified as "liquid" according to 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	—	—	—	Containing no metals or metalloids (B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At)
13 Oxidizing liquids	Not applicable	—	—	—	Organic compounds containing chlorine (but not oxygen and fluorine), with the chlorine bound to carbon and hydrogen (but not to other elements).
14 Oxidizing solids	Not applicable	—	—	—	Classified as "liquid" according to 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 (boiling point: 48.7degC (Lide, 84th, 2003), test temperature: 55degC)

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	Based on the LD50 value of 1,392mg/kg calculated from the testing data of rat LD50 (oral route) of 1,235mg/kg (MOE Risk Assessment vol. 2 (2003)), 1,275mg/kg (ACGIH (7th, 2001)), 7,900mg/kg (ATSDR (1997)) and 10,000mg/kg (ATSDR (1997)).
1 Acute toxicity (dermal)	Not classified	—	—	—	The substance is not classified due to lack of data suggesting acute effects on human health, though a LD50 value of 5,000mg/kg was obtained from an acute toxicity study on rabbits by the dermal route (CERI Hazard Data 2000-46 (2001)).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "liquid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: vapour)	Not classified	—	—	—	Based on the LD50 (4 hours) value of 26,600ppm, calculated from the testing data of mouse LC50 (6-hour inhalation) of 21,723ppm (ACGIH (7th, 2001)), was lower than 90% of the saturated vapour concentration (264,000ppm) under a saturated vapour pressure of 26.7kPa (20degC), the substance was "Not classified" based on standard values expressed in ppm.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the evidence of "moderate skin irritation" from the rabbit skin irritation tests (CERI Hazard Data 2000-46 (2001)), though the results are not those of 4-hour application.
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the evidence of "moderate irritation" from human epidemiological studies (MOE Risk Assessment vol. 2 (2003)) and rabbit eye irritation tests (CERI Hazard Data 2000-46 (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) —	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Not classified	—	—	—	Based on the absence of data on multi-generation mutagenicity tests and germ cell mutagenicity tests in vivo, and negative data on somatic cell mutagenicity tests in vivo (micronucleus tests, chromosome aberration tests), described in NTP TR55 (2002), ATSDR (1996) and CERI Hazard Data 2000-46 (2001).
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Classification not possible	—	—	—	Classification not possible due to the insufficiency of data (with no data available on reproductive toxicity).

8	Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, liver) Category 2 (heart, respiratory organs) Category 3 (narcotic effects)	Health hazard and Exclamation mark	Danger Warning	Causes damage to organs (central nervous system, liver) May cause damage to organs (heart, respiratory organs) (Narcotic effects) May cause drowsiness or dizziness	Based on the human evidence including "nausea, drowsiness, fatigue, dizziness, increased ICP" (ATSDR (1996)), and the evidence from animal studies including "fibrous swelling/congestion of the cardiac muscle, fat accumulation to the hepatic lobule and Kupffer cells, congestion of the pulmonary capillaries and dilatation of the alveolar wall" (ATSDR (1996)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Categories 1 and 2.
9	Specific target organs/systemic toxicity following repeated exposure	Category 2 (respiratory organs)	Health hazard	Warning	Causes damage to organs through prolonged or repeated exposure (respiratory organs)	Based on the evidence from animal studies including "cellular infiltration in the lung" (IRIS (1998)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 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)	Not classified	-	-	-	It was classified into Not classified from 96 hours LC50=135mg/L of the fish (Bluegill) (CERI Hazard Data, 2002).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since it was not water-insolubility (the water-solubility =4520mg/L (PHYSPROP Database, 2005)), and acute toxicity was low, it was classified into Not classified.