

GHS Classification

ID127

1,1-Dichloroethylene; Vinyldene dichloride

CAS 75-35-4

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 1	Flame	Danger	Extremely flammable liquid and vapour	The flash point is -25degC (c.c.) (ICSC (2004)) and the boiling point is 32degC. Those containing stabilizers are classified into Class 3, Packing Group I (UN#1303) (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	Classification not possible	—	—	—	Classification not possible due to lack of data, though containing unsaturated bonds. Those containing stabilizers are classified into Class 3, Packing Group I (UN#1303) (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 570degC (ICSC, 2004)
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 gaseous substances are not available (boiling point: 32degC (ICSC, 2004), 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 1,500mg/kg, calculated from the testing data of rat LD50 (oral route) of 1,550mg/kg, 1,800mg/kg and 1,500mg/kg (CICAD 51 (2003)).
1 Acute toxicity (dermal)	Classification not possible	—	—	—	No data available
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)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	Based on the rat LC50 value of 2,300ppm (4 hours), calculated from the testing data of rat LD50 (inhalation of vapour) of 1.66mg/L (4 hours) (CERI-NITE Hazard Assessment No.48 (2004)), 26.18mg/L (4 hours) (CERI-NITE Hazard Assessment No.48 (2004)), 25mg/L (CICAD 51 (2003)), 25.4mg/L (4 hours) (EHC 100 (1990)), 60mg/L (4 hours) (EHC 100 (1990)), 28.4mg/L (4 hours) (EHC 100 (1990)), 2.4mg/L (4 hours) (EHC 100 (1990)), was lower than 90% of the saturated vapour concentration (780,000ppm) under a saturated vapour pressure of 78.79kPa (25degC), the substance was considered as "vapour containing no mist" and was classified based on standard values expressed in ppm.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Classification not possible	—	—	—	Classification is not possible due to the insufficiency of data. The substance shows positive results in rabbit skin irritation tests, which are, however, believed to be attributed to a polymerization inhibitor (CERI-NITE Hazard Assessment No.48 (2004)). Furthermore, evidence of irritation is not reported in CICAD (2003).
3 Serious eye damage / eye irritation	Classification not possible	—	—	—	CERI Hazard Data 96-23 (1998) and EHC100 (1990) report the evidence of moderate eye irritation associated with transient corneal lesions observed in rabbits. However, these reactions might potentially be attributable to MEHQ, a polymerization inhibitor, given the following description in ATSDR (1994): "1, 1-dichloroethene is an ocular irritant in humans (EPA 1979b); this effect has also been ascribed to MEHQ." Moreover, no evidence of irritation was reported in CICAD (2003). Given these uncertainties, it was decided not to use this specific observation for classification.
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 negative data on multi-generation mutagenicity tests (dominant lethal tests) and somatic cell mutagenicity tests in vivo (chromosome aberration tests and micronucleus tests), and the absence of data on germ cell mutagenicity tests in vivo, described in CICAD 51 (2003), EHC 100 (1990) and NTP DB (2006).
6 Carcinogenicity	Not classified	—	—	—	Due to the fact that the substance is classified as Category C by EPA (2002), Category A4 by ACGIH (2001) and Category 3 by IARC (1999).
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of adverse effects on offspring at doses causing maternal toxicity, described in CERI-NITE Hazard Assessment No.48 (2005) and CICAD 51 (2003). In a reproductive toxicity study, heart defects were observed at dose levels inducing no toxicity in maternal animals (Dawson et al (1993)). However, it is stated in CICAD 51 (2003) that its biological significance is unclear and the data provided are insufficient to attribute the findings to the substance. Hence the observation of the study cannot serve as a basis for classification.

8	Specific target organs/systemic toxicity following single exposure	Category 1 (liver, kidneys, respiratory organs), Category 3 (narcotic effects)	Health hazard and Exclamation mark	Danger Warning	Causes damage to organs (liver, kidneys, respiratory organs) (Narcotic effects) May cause drowsiness or dizziness	Based on the human evidence including "suppression or excitement of the central nervous system, leading to unconsciousness in severe cases; irritation induced following a few minute exposure" (CERI-NITE Hazard Assessment No.48 (2005)), and the evidence from animal studies including "capillary bile duct damage, proximal renal tubule damage, centrolobular hepatocyte necrosis, congestive edema of the lung" (CERI-NITE Hazard Assessment No.48 (2005)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (liver) Category 2 (kidneys)	Health hazard	Danger Warning	Causes damage to organs through prolonged or repeated exposure (liver) May cause damage to organs through prolonged or repeated exposure (kidneys)	Based on the human evidence including "hepatic function disorder" (CERI-NITE Hazard Assessment No.48 (2005)), and the evidence from animal studies including "hypertrophy of hepatocytes associated with mild fatty degeneration of centrolobular hepatocytes, mild degeneration of the kidney, abscess, nephritis, fatty degeneration and focal necrosis of the liver" (CERI-NITE Hazard Assessment No.48 (2005)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1 (liver) and Category 2 (kidneys).
10	Aspiration hazard	Category 2	Health hazard	Warning	May be harmful if swallowed and enters airways	May cause aspiration and chemical pneumonia if swallowed (ICSC (J) (2000)), "In case of accidental ingestion, rinsing the mouth with water is recommended. An attempt to induce vomiting is not advised as the material may enter the pharynx and/or lung" (EHC 100 (1990)).

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 48 hours EC50=11.6mg/L of the crustacea (Daphnia magna) (CERI/NITE Hazard Assessment Report, 2005).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since it is easy to strip from the environmental water to the air (the half life of the water (lake and river) is 1 day and 6 days (CICAD (2003))) and the bio-accumulation was low (BCF=6.4 (Existing Chemical Safety Inspections Data)), it was classified into Not classified.