

## GHS Classification

**ID141**

**Dichloromethane; Methylene dichloride**

**CAS 75-09-2**

Date Classified: Mar. 23, 2006 (Environmental Hazards: Feb. 10, 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 atom 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	Classification not possible	-	-	-	Cannot be classified due to varied information on the flammability - e.g., "combustible under specific conditions," (explosion limit: 12-25 vol%), according to ICSC (2004), and "no flashing point," according to NFPA (13th, 2002). Classified into Category 6.1 (UN Recommendations on the Transport of Dangerous Goods, UN#1593)
7 Flammable solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	-	-	-	Containing no atom groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures: the flashing point is 556degC (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: 40degC (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 rat LD50 (oral route) value of 1,600mg/kg representing the lower of the two testing data, 2,100mg/kg (CERI Hazard Data 96-2, 1997) and 1,600mg/kg (MOE Risk Assessment Vol.2, 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)	Not classified	-	-	-	Based on the LC50 value (4 hours) of 64mg/L (18,000ppm), calculated from the testing data of rat LC50 (6 hour inhalation exposure) of 53mg/L (CERI-NITE Hazard Assessment No.15, 2004), was lower than 90% of the saturated vapor concentration (570,000 ppm) under a saturated vapour pressure of 58 kPa (25degC), the substance was considered as "vapour containing substantially 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	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the evidence of "moderate irritation but no skin corrosion observed" from rabbit skin irritation tests (CERI-NITE Hazard Assessment No.15, 2004).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes severe eye irritation	Based on the evidence of "moderate or severe eyelid irritation" from rabbit eye irritation tests (CERI-NITE Hazard Assessment No.15, 2004).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Classification not possible	-	-	-	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Not classified	-	-	-	Based on negative data on heritable mutagenicity tests (dominant lethal tests) and somatic cell mutagenicity tests in vivo (micronucleus/chromosome aberration tests) and the absence of germ cell mutagenicity tests in vivo, described in CERI-NITE Hazard Assessment No.15 (2004), IARC 71 (1999) and EHC 164 (1996). One testing agency reported that the substance was weakly positive for inhalation toxicity in micronucleus, chromosome aberration and SCE tests in mice, but the responses were weak and considered ambiguous and indecisive in EHC 164 (1996) and thus was not considered "positive".
6 Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer	Due to the fact that the substance is classified as Category R by NTP (2005), Group 2B by IARC (1999), Category A3 by ACGIH (2001) and Category B2 by EPA (1993).
7 Toxic to reproduction	Classification not possible	-	-	-	Insufficient data available

8	Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, respiratory organs) Category 3 (narcotic effects)	Health hazard	Danger	Causes damage to organs (central nervous system, respiratory organs), may cause sleepiness and dizziness	Suppression of the central nervous system, such as cyanosis, headaches, chest pains, disturbance of consciousness, progressive vigilance disturbance, increased fatigue, lethargy, memory loss and loss of time sensation, and decreased critical flicker frequency as a measure for sensory function have been observed, and then neurobehavioural effects, such as diffused vigilance and impaired combined tracking monitoring performance, and other effects such as inflammation of the skins and lung with sclerosis, lung edema with bleeding, and cerebral edema with tonsillar herniation have been observed as acute toxicity symptoms in humans (CERI-NITE Hazard Assessment Report No.15 (2004)). Moreover, there have been adverse reports such as necrosis of the epithelial cells in the bronchi and bronchioles, swollen and vacuolated Clara cells, mildly increased cell divisions and changes in somatosensory evoked responses and EEG(CERI-NITE Hazard Assessment Report No.15 (2004)) within the guidance values for Category 2 in the single-dose studies. Based on these effects, the centralnervous system and respiratory organs are considered to be the target organs.
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 human evidence including "intermittent headache, nausea, flickering vision, breathlessness, temporary memory disorder and right brain damage found in electroencephalography" (CERI-NITE Hazard Assessment No.15, 2004) and "cerebroathy associated with auditory/visionary hallucinations after exposure", "memory disorder associated with intellectual impairment, loss of balance, temporary bilateral degeneration of temporal lobe" (HSDB, 2000) and the evidence from animal studies including "hepatocytes positively stained for fat, mild vacuolation of hepatocytes" and "mutant hepatocytes" (CERI-NITE Hazard Assessment No.15, 2004). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
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 48 hours LC50=27mg/L of Crustacea (Daphnia magna) (CaPSAR, 1993).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Although acute toxicity was Category 2 and the bio-accumulation potential was low (BCF=40(Existing Chemical Safety Inspections Data)), since there was no rapidly degrading (the decomposition by BOD: 13%(Existing Chemical Safety Inspections Data)), it was classified into Category 2.