

## GHS Classification

**ID128**

**1,2-Dichloroethylene**

**CAS 540-59-0**

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	Category 2	Flame	Danger	Highly flammable liquid and vapour	The flashing points are 6degC for cis-dichloroethylene and 2-4degC for trans-dichloroethylene (ICSC, 2003) (closed cup flash test); the boiling point is 55degC — which is classified into Category 2, or Class 3 and Container II (UN#1150, 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 into Class 3 (UN#1150) by UN Recommendations on the Transport of Dangerous Goods.
9 Pyrophoric liquids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures; the flashing point is 460degC (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	Not classified	—	—	—	Classified into Class 3 (UN#1150) by UN Recommendations on the Transport of Dangerous Goods

## Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 5	—	Warning	May be harmful if swallowed	Based on the LD50 value of 2,080mg/kg calculated from the testing data of rat LD50 (oral route) of 1,275mg/kg (ACGIH 7th, 2001), 7,900mg/kg (ATSDR, 2001) and 10,000mg/kg (ATSDR, 2001) using trans-1,2-dichloroethylene, although no data were available for 1,2-dichloroethylene
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 (4 hours) value of 26.610ppm, calculated from the testing data of mouse LC50 (inhalation of vapour) of 86.24 mg/L (6 hours) (ACGIH 7th, 2001) obtained using trans-1,2-dichloroethylene, was lower than 90% of the saturated vapor concentration (238,000ppm) under a saturated vapour pressure of 180 Torr (20degC) (ACGIH 7th, 2001), the substance was considered as "vapour containing substantially no mist" and was classified based on standard values expressed in ppm, although no data were available for 1,2-dichloroethylene (mixture).
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" from the rabbit skin irritation test using trans-1,2-dichloroethylene (CERI Hazard Data 2000-46, 2001), although no data were available for 1,2-dichloroethylene (mixture).
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes strong eye irritation	Based on the evidence of "moderate irritation" from the rabbit eye irritation test using trans-1,2-dichloroethylene (CERI Hazard Data 2000-46, 2001), although no data were available for 1,2-dichloroethylene (mixture).
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 positive data on heritable/germ-cell in vivo mutagenicity tests and the presence of negative data on somatic cell mutagenicity tests in vivo, described in NTP TOX55 (2002).
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Classification not possible	—	—	—	No data available
8 Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system)	Health hazard	Danger	Cause damage to organs (central nervous system)	Based on the human evidence including "nausea, vomiting, tremor, oppressing feeling in the upper abdomen and depression of the central nervous system" (CERI Hazard Assessment 2000-46, 2001) and the evidence from animal studies including "a 45% loss of swimming capability" (ATSDR, 1996). 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 2 (blood system)	Health hazard	Warning	May cause damage to organs (blood systems) through prolonged or repeated exposure	Based on the evidence from animal studies including "marked decreases in complete blood counts, red blood cell counts, hemoglobin levels and hematocrit values" (ATSDR, 1996). 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)	Category 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 24 hours LC50=0.07mmol/L of the crustacea (Brine Shrimp) (AQUIRE, 2003).
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 (log Kow=2(PHYSPROP Database, 2005)), since there was no rapidly degrading (the decomposition by BOD: 0%(HSDB, 2004)), it was classified into Category 2.