

GHS Classification

ID441

Trichloroacetaldehyde

CAS 75-87-6

Date Classified: Aug. 22, 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	Classification not possible	—	—	—	No data available
7 Flammable solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Classification not possible	—	—	—	No data available. Those containing stabilizers are classified into Division 6.1 (UN#2075) (UN Recommendations on the Transport of Dangerous Goods)
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 oxygen and chlorine (but not fluorine), with the oxygen and chlorine bound to carbon and hydrogen respectively (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	—	—	—	No data available. Those containing stabilizers are classified into Division 6.1 (UN#2075) (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 4	Exclamation mark	Warning	Harmful if swallowed	Based on the rat LD50 (oral route) value of 480mg/kg (CICAD 25 (2000)).
1 Acute toxicity (dermal)	Category 4	Exclamation mark	Warning	Harmful in contact with skin	Based on the guinea pig LD50 (dermal route) value of 1,510mg/kg representing the lower of the two testing data, 1,510mg/kg and 15,000mg/kg (CERI Hazard Data 2000-52 (2001)).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "liquid" according to the GHS definition.
1 Acute toxicity (inhalation: vapour)	Category 1	Skull and crossbones	Danger	Fatal if inhaled	Based on the rat LC50 value of 0.44mg/L (equivalent to 73ppm), representing the lower of the two testing data of rat LC50 (inhalation of vapour) of 2.12mg/L (4 hours) (CERI Hazard Data 2000-52 (2001)) and 0.44mg/L (MOE Risk Assessment vol. 3 (2004)), was lower than 90% of the saturated vapour concentration (47,000ppm) under a saturated vapour pressure of 4.7kPa (20degC) (CERI Hazard Data 2000-52 (2001)), 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 3	—	Warning	Causes mild skin irritation	Based on the description of the human health effects (CERI-NITE Hazard Assessment No.97 (2004)): "Chloral hydrate has a potential for skin and mucosal irritation, and at clinical doses, abdominal pain, nausea and vomiting may occur." The substance is thus considered a skin irritant, but classified into Category 3 in the absence of data on the degree of irritation. According to NITE Initial Risk Assessment No.97 (2005), "trichloroacetaldehyde rapidly reacts in vivo with water to form chloral hydrate." However, only those studies specifying "trichloroacetaldehyde" as the test material were used as a basis for classification.
3 Serious eye damage / eye irritation	Category 2B	—	Warning	Causes eye irritation	Based on the description of the human health effects (CERI-NITE Hazard Assessment No.97 (2004)): "Chloral hydrate has a potential for skin and mucosal irritation, and at clinical doses, abdominal pain, nausea and vomiting may occur." The substance is thus considered a skin irritant, but classified into Category 2B in the absence of data on the degree of irritation. According to NITE Initial Risk Assessment No.97 (2005), "trichloroacetaldehyde rapidly reacts in vivo with water to form chloral hydrate." However, only those studies specifying "trichloroacetaldehyde" as the test material were used as a basis 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	Category 1B	Health hazard	Danger	May cause genetic defects	Based on the absence of data on multi-generation mutagenicity tests and positive data on germ cell mutagenicity tests in vivo (micronucleus tests), described in NITE Initial Risk Assessment No.97 (2005), NTP DB (Access on April 2006) and IARC 63 (1995).
6 Carcinogenicity	Not classified	—	—	—	Due to the fact that the substance is classified as Group 3 (CHLORAL AND CHLORAL HYDRATE) by IARC (2004).

7	Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the evidence of learning deficits in the offspring, described in MOE Risk Assessment vol. 2 (2003), CICAD 25 (2000) and IARC 63 (1995), though no data are available regarding the general conditions of parental animals.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory organs), Category 3 (narcotic effects)	Health hazard	Danger	Causes damage to organs (respiratory organs) (Narcotic effects) May cause drowsiness or dizziness	Based on the evidence from animal studies including "strong narcotic effects, vacuolization of Clara cells, alveolar necrosis, epithelial exfoliation and alveolar edema" (NITE Initial Risk Assessment No.97 (2005)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1. According to NITE Initial Risk Assessment No.97 (2005), "trichloroacetaldehyde rapidly reacts in vivo with water to form chloral hydrate." However, only those studies specifying "trichloroacetaldehyde" as the test material were used as a basis for classification.
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	—	—	—	Classification not possible due to the insufficiency of data. According to NITE Initial Risk Assessment No.97 (2005), "trichloroacetaldehyde rapidly reacts in vivo with water to form chloral hydrate." However, only those studies specifying "trichloroacetaldehyde" as the test material were used as a basis for classification.
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 48 hours EC50=112mg/L of the crustacea (Daphnia magna) (CERI/NITE Hazard Assessment Report (2005) and others.).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since it was not water-insolubility (the water-solubility =30000mg/L (PHYSPROP Database, 2005)), and acute toxicity was low, it was classified into Not classified.