

GHS Classification

ID443

Trichlorotrifluoroethane; CFC-113

CAS

Date Classified: Nov. 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	Classification not possible	—	—	—	Classification not possible due to lack of data. Classified as flammable under special conditions, according to ICSC (2004) (1,1,2-trichloro-1,2,2-trifluoroethane).
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	Not classified	—	—	—	Considered non-pyrophoric when in contact with air at ordinary temperatures since the substance is used as cleaners (precision parts cleaning, metal cleaning, dry cleaning) (CERI Hazard Data (1999))
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 (melting point: -36degC (1,1,2-trichloro-1,2,2-trifluoroethane, ICSC (2004)), 14.2degC (1,1,1-trichloro-2,2,2-trifluoroethane, HSDB (2006)), test temperature: 140degC).
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 fluorine and chlorine (but not oxygen), with the fluorine and 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	—	—	—	Classification not possible due to lack of data. 1,1,2-trichloro-1,2,2-trifluoroethane is reported to act on magnesium and magnesium alloys (ICSC (2004))

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 rat LD50 (oral route) value of 43,000mg/kg (CERI Hazard Data 98-23 (1999)) (1,1,2-trichloro-1,2,2-trifluoroethane).
1 Acute toxicity (dermal)	Category 5	—	Warning	May be harmful in contact with skin	Based on the rabbit LD50 (dermal route) value of >11,000mg/kg (RTECS (2006)) (1,1,2-trichloro-1,2,2-trifluoroethane).
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is a liquid according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: vapour)	Category 5	—	Warning	May be harmful if inhaled	Based on the LC50 value of 398.49mg/L calculated from the testing data of rat LC50 (inhalation route) of 398.49mg/L (CERI Hazard Data 98-23 (1999)), 409mg/L (calculated from 857mg/L (2 hours)), 428mg/L (EHC (1990)), 521.11mg/L (CERI Hazard Data 98-23 (1999)) (all 4 hour inhalation) (saturated vapour concentration of 3,672mg/L under a saturated vapour pressure (25degC) of 48.4kPa (363mmHg) (HSDB (2006)) (1,1,2-trichloro-1,2,2-trifluoroethane).
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 in the report on rabbit skin irritation tests evaluated according to the Draize scheme (24 hour application) (CERI Hazard Data 98-23 (1999)): Caused "mild irritation" (1,1,2-trichloro-1,2,2-trifluoroethane).
3 Serious eye damage / eye irritation	Category 2B	—	Warning	Causes eye irritation	Based on the description in the report on rabbit eye irritation tests (DFGOT vol. 3 (1992)): Caused "mild conjunctivitis and a minimal corneal reaction." The substance is thus considered a mild eye irritant (1,1,2-trichloro-1,2,2-trifluoroethane).
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: According to the descriptions in CERI Hazard Data 98-23 (1999) and IUCLID (2000), guinea pig skin sensitization tests using the Maximization method showed no indication of sensitization. However, classification is not possible, with only two sets of data showing "negative" available (1,1,2-trichloro-1,2,2-trifluoroethane).
5 Germ cell mutagenicity	Not classified	—	—	—	Based on negative data on multi-generation mutagenicity tests (dominant lethal tests), the absence of data on in vivo germ/somatic cell mutagenicity tests, described in ACGIH (7th, 2001), EHC 113 (1990) and DFGOT vol.3 (1992).
6 Carcinogenicity	Not classified	—	—	—	Due to the fact that the substance is classified as Category A4 (as 1,1,2-trichloro-1,2,2-trifluoroethane (CAS: 76-13-1)) by ACGIH (7th, 2001).
7 Toxic to reproduction	Not classified	—	—	—	Based on no definitive evidence of toxic effects observed in rat and rabbit teratogenicity/reproduction studies, described in MOE Risk Assessment Vol. 4 (2005), ACGIH (7th, 2001) and CERI Hazard Data 98-23 (1999).

8	Specific target organs/systemic toxicity following single exposure	Category 1 (liver, respiratory organs, central nervous system, blood system, gastrointestinal tract, cardiovascular system), Category 3 (narcotic effects)	Health hazard	Danger	Causes damage to organs (liver, respiratory organs, central nervous system, blood system, gastrointestinal tract, cardiovascular system) (Narcotic effects) May cause drowsiness or dizziness	Based on the human evidence: "weak narcotic effects, and hypertrophy/lipogenesis of hepatocytes." "clinical symptoms including...pulmonary edema were noted." "clouding of consciousness and paleness were found; examination revealed hypochromic anemia and diffuse colitis," "temporary cyanosis was seen..." "lack of concentration occurred... and 10-30% decline in work efficiency was noted. Moreover, ... lethargy and a slight loss of orientation after shaking the head from left to right were found..." (MOE Risk Assessment Vol. 4 (2005)). "...some deaths due to asphyxiation or cardiac arrhythmia were reported" (EHC (1990)). "... adversely affects the cardiovascular system, central nervous system, induce cardiopathy and central nervous depression, and cause a lowering of consciousness; Acute symptoms include... cardiac arrhythmias, confusion, lethargy, short of breath and loss of consciousness by the inhalation route of exposure" (MOE Risk Assessment Vol. 4 (2005)).
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system, liver)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (central nervous system, liver)	Based on the human evidence including "...emotional instability, chronic neuropsychological symptoms with learning disability, dysnesia and concentration difficulties..." "mild elevation of AST and ALT, and mild hepatopathy with adipose infiltration" (CERI Hazard Data 98-23 (1999)).
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 96 hours LC50=7.4mg/L of the fish (Rainbow Trout) (CERI Hazard Data, 1999).
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=86(Existing Chemical Safety Inspections Data)), since there was no rapidly degrading (the decomposition by BOD: 2%(Existing Chemical Safety Inspections Data)), it was classified into Category 2.