

GHS Classification

ID438

Tetrachlorodifluoroethane; CFC-112

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 "solid" according to GHS definition
3 Flammable aerosols	Not applicable	—	—	—	Not aerosol products
4 Oxidizing gases	Not applicable	—	—	—	Classified as "solid" according to GHS definition
5 Gases under pressure	Not applicable	—	—	—	Classified as "solid" according to GHS definition
6 Flammable liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
7 Flammable solids	Not classified	—	—	—	Non-flammable (ICSC (2004)).
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no chemical groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not applicable	—	—	—	Classified as "solid" according to GHS definition
10 Pyrophoric solids	Not classified	—	—	—	Non-flammable (ICSC (2004)).
11 Self-heating substances and mixtures	Not classified	—	—	—	Non-flammable (ICSC (2004)).
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	—	—	—	Classified as "solid" according to GHS definition
14 Oxidizing solids	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)
15 Organic peroxides	Not applicable	—	—	—	Organic compounds containing no "-O-O-" structure
16 Corrosive to metals	Classification not possible	—	—	—	No data available on substances with melting point of <55degC (melting point: 40.6degC (1,1,2,2-tetrachloro-1,1-difluoroethane, ICSC (2004)), melting point: 26degC (1,1,2-tetrachloro-1,2-difluoroethane, ICSC (2004))).

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	1,1,1,2-Tetrachloro-2,2-difluoroethane yields the rat LD50 (oral route) value of >8,000mg/kg (HSDB (2006)), which is "Not classified." 1,1,2,2-Tetrachloro-1,2-difluoroethane yields the mouse LD50 (oral route) value of 800mg/kg (HSDB (2006)), which is classified as Category 4. Based on the lower of the two testing data (800mg/kg), tetrachlorodifluoroethane is included in Category 4.
1 Acute toxicity (dermal)	Classification not possible	—	—	—	No data available
1 Acute toxicity (inhalation: gas)	Classification not possible	—	—	—	Due to the fact that the substance is a solid 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	1,1,1,2-Tetrachloro-2,2-difluoroethane yields the rat LC50 (inhalation route) value of 125.04mg/L (4 hours) (ACGIH (7th, 2001)), which is classified as Category 5 (saturated vapour concentration of 659mg/L under a saturated vapour pressure of 8.00 kPa (25degC) (HSDB (2006))). 1,1,2,2-Tetrachloro-1,2-difluoroethane yields the LC50 value of 25mg/L (4 hours) calculated from the mouse LC50 of 50mg/L (2 hour inhalation) (RTECS (2006)), which is classified as Category 5 (saturated vapour concentration of 555mg/L under a saturated vapour pressure of 6.73kPa (25degC) (HSDB (2006))).
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 (EHC (1990)): Caused "histological changes in skin musculature" (1,1,1,2-Tetrachloro-2,2-difluoroethane). Based on the description in the report on rabbit skin irritation tests (exposure duration unknown) (EHC (1990)): Caused "skin erythema but no systematic or histological effects." Also based on the evidence of "mild" irritation from guinea pig skin irritation tests (24 hour application) and the evidence of human health effects: "Mildly irritating to the respiratory tract and skin" (RTECS (2006)) (1,1,2,2-Tetrachloro-1,2-difluoroethane).
3 Serious eye damage / eye irritation	Category 2B	—	Warning	Causes eye irritation	Based on the description in the report on rabbit eye irritation tests (HSDB (2006)): "Mild conjunctival irritation." Also based on the description of the human health effects (HSDB (2006)): "Mildly irritating to the eye." The substance is thus considered a mild eye irritant (1,1,2,2-Tetrachloro-1,2-difluoroethane).
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 description in EHC (1990), a skin sensitization tests showed no indication of sensitization in guinea pigs. However, classification is not possible, with only one set of data showing "negative" available (1,1,2,2-Tetrachloro-1,2-difluoroethane).
5 Germ cell mutagenicity	Not classified	—	—	—	Based on negative data on multi-generation mutagenicity tests (dominant lethal tests), described in EHC 113 (1990), DFGOT vol.1 (1990) and NTP DB (Access on July 2006).
6 Carcinogenicity	Classification not possible	—	—	—	Classification not possible based on expert judgment in the absence of existing classification, though EHC 113 (1990) and DFGOT vol.1 (1990) provide some toxicity data.
7 Toxic to reproduction	Classification not possible	—	—	—	No data available

8	Specific target organs/systemic toxicity following single exposure	Category 2 (respiratory organs, cardiovascular system, central nervous system)	Health hazard	Warning	May cause damage to organs (respiratory organs, cardiovascular system, central nervous system)	Based on the human evidence: "Acute inhalation exposure to high concentrations can cause pulmonary edema; may adversely affect the cardiovascular/central nervous system, causing cardiopathy and central nervous depression; may involve a lowering of consciousness" (ICSC (J) (2003)). However, since the referenced study is assigned a priority rating of 2, these effects are classified into Category 2.
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	—	—	—	Insufficient data available
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)	Classification not possible	—	—	—	No data available
11 Hazardous to the aquatic environment (chronic)	Classification not possible	—	—	—	No data available