

GHS Classification

ID702

Ethyl formate

CAS 109-94-4

Date Classified: Apr. 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	-	-	-	There are no chemical groups associated with explosive properties present in the molecules.
2 Flammable gases	Not applicable	-	-	-	Liquid (GHS definition)
3 Flammable aerosols	Not applicable	-	-	-	Not aerosol products
4 Oxidizing gases	Not applicable	-	-	-	Liquid (GHS definition)
5 Gases under pressure	Not applicable	-	-	-	Liquid (GHS definition)
6 Flammable liquids	Category 2	Flame	Danger	Highly flammable liquid and vapour	Flash point: -20degC. Boiling point: 53 to 54degC
7 Flammable solids	Not applicable	-	-	-	Liquid (GHS definition)
8 Self-reactive substances and mixtures	Not applicable	-	-	-	There are no chemical groups associated with explosive or self-reactive properties present in the molecule.
9 Pyrophoric liquids	Not classified	-	-	-	It is the liquid with ignition points of 440 degC (ICSC (1998)), and it does not ignite in room temperatures.
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (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	-	-	-	The chemical structure of the substance does not contain metals or metalloids(B, Si, P, Ge, As, Se, Sn, Sb, Te, Bi, Po, At).
13 Oxidizing liquids	Not applicable	-	-	-	Organic compounds containing oxygen (but not chlorine and fluorine) chemically bonded only to carbon (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Organic compounds containing no -O-O- structure
16 Corrosive to metals	Classification not possible	-	-	-	No data available

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	SPECIES: Rat ENDPOINT: LD50 VALUE: 1850 mg/kg REFERENCE SOURCE: DFGOTvol.19 (2003)
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rabbit LD50: >5000mg/kg (IUCLID (2000)), it was set as the outside of Category.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Category 5	-	Warning	May be harmful if inhaled	Based on rat LC50 value: 4000 - 8000ppm (ACGIH (2001)), it was classified as Category 5. (The saturated vapor concentration at 20degC is 3.2*10 ⁵ ppm)
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Not classified	-	-	-	Based on descriptions that it has no stimulativeness on rabbits (DFGOTvol.19 (2003)) or on humans (DFGOTvol.19 (2003) and IUCLID (2000)), it was classified as out of Category.
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	There are statements of the moderate stimulativeness in the human exposure to vapor (HSDB (2005)), inflammation of a cornea by rabbit test (DFGOTvol.19 (2003)) and moderate stimulativeness (IUCLID (2000)). But there is no resilience data, and Category of 2A and 2B is not made. When a display is required, it is recommended to be set as 2A from a viewpoint of safety.
4 Respiratory/skin sensitization	respiratory sensitization: Classification not possible; Skin sensitization: Not possible	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	(Respiratory sensitization)-; (Skin sensitization)-	Respiratory sensitization: There is no data. Skin sensitization: It was put outside of the Category based on a statement of volunteering test indicating non-existence of the sensitization (IUCLID (2000)).
5 Germ cell mutagenicity	Classification not possible	-	-	-	We found the negative result for the in vitro test (the Ames test, negative), however, we found no in vivo report. Therefore we presupposed that we could not classify it according to the technical guideline.
6 Carcinogenicity	Classification not possible	-	-	-	There was a statement of negative in percutaneous tests (PATTY (2001)), (DFGOTvol.19 (2003)). But there is no data of taking orally of inhalation and there is also no information of evaluation organizations, such as IARC. So it was presupposed that it cannot be classified.

7	Toxic to reproduction	Classification not possible	-	-	-	Classification not possible due to lack of data
8	Specific target organs/systemic toxicity following single exposure	Category 3 (narcotic effects, respiratory tract irritation)	Exclamation mark	Warning	May cause respiratory irritation or may cause drowsiness and dizziness (narcotic effects, respiratory tract irritation)	There are the description that there is anesthetic action, irritation to nose in human exposure (ACGIH (2001)), it is classified into Category 3 (anesthetic action, respiratory irritation). The symptoms which is reported in the animal test was seen out of the amount of the administration of the guidance value of the Category 2.
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Classification not possible due to lack of data
10	Aspiration hazard	Classification not possible	-	-	-	Classification not possible due to lack of data on chemical pneumonia, though Dynamic viscosity: 0.434mm ² /s.

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Not classified	-	-	-	It carried out the outside of Category from 96-hour LC50=230mg/L of fishes (Rainbow trout). (IUCLID, 2000)
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (aqueous solubility = 88200 mg/L (PHYSPROP Database, 2005)) and acute toxicity is low.