

GHS Classification

ID616

Methanol

CAS 67-56-1

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	-	-	-	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: <23degC, Boiling point: >35degC, UNRTDG Class: 3, PG II
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	-	-	-	Flash point: 385degC (Solvent Pocket Book , 1994 p391-401)
10 Pyrophoric solids	Not applicable	-	-	-	Liquid (GHS definition)
11 Self-heating substances and mixtures	Not classified	-	-	-	UNRTDG Class: 3
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 and hydrogen (but not to other elements).
14 Oxidizing solids	Not applicable	-	-	-	Liquid (GHS definition)
15 Organic peroxides	Not applicable	-	-	-	Containing no -O-O- structure
16 Corrosive to metals	Not classified	-	-	-	UNRTDG Class: 3

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	Calculation was done based on rat oral LD50 value = 6200mg/kg (EHC 196 (1997), ACGIH (7th, 2001), DFGOT vol.16 (2001), PATTY (4th, 1994)), 9100mg/kg (EHC 196 (1997), PATTY (4th, 1994)), 12900mg/kg (EHC 196 (1997), DFGOT vol.16 (2001), PATTY (4th, 1994)), and 13000mg/kg (EHC 196 (1997), ACGIH (7th, 2001), PATTY (4th, 1994)). The calculation value was 7939mg/kg, and it was judged to be the outside of Category from the result of the animal experiments. On the other hand, there is description that the toxicity of methanol appears highly in primates compared with rodent (EHC 196 (1997)). And the dose leading to death in an about half in humans is 1400mg/kg (DFGOT vol.16 (2001)), it was set as Category 5.
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on rabbits percutaneous LD50 value = 15800mg/kg (DFGOT vol.16 (2001), PATTY (4th, 1994)), it was set as the outside of Category.
1 Acute toxicity (inhalation: gas)	Not applicable	-	-	-	Liquid (GHS definition)
1 Acute toxicity (inhalation: vapour)	Not classified	-	-	-	Based on rat inhalation LC50 (8 hours) value = 22500ppm (DFGOT vol.16 (2001), assumed to be vapor from vapor pressure, it was classified as out of Category.
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	-	-	-	No data available
2 Skin corrosion / irritation	Classification not possible	-	-	-	While there is description that the moderate irritation was seen after 24-hour exposure with the degreasing action in rabbit test (DFGOT vol.16 (2001)), there is description that irritation was not seen in another test which applied it on rabbit for 20 hours obstructions, and since the test data based on exposure of less than 4 hours was not obtained, it was not able to classify.
3 Serious eye damage / eye irritation	Category 2A-2B	Exclamation mark	Warning	Causes serious eye irritation	There is description that mild or moderate eye irritation was admitted by the test using the rabbit (EHC 196 (1997), DFGOT vol.16 (2001), and PATTY (4th, 1994)). But there is no clear description about repairable, and the obstacle of a cornea and strong conjunctiva dropsy were transiently admitted in human (DFGOT vol.16 (2001)). So it was set as Category 2A-2B.
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)-	Respirator: No data Skin: Although there is a description (PATTY (4th, 1994)) which cited two or more articles reporting allergic contact dermatitis in human skin evidence of exposure, there is no description on the concrete cases. On the other hand, there are descriptions (EHC 196 (1997) and DFGOT vol.16 (2001)) that sensitization was not identified in the Magnusson-Kligman maximization test using the guinea pigs. Since data was insufficient for judging the existence of skin sensitization from these information, it could not be classified.
5 Germ cell mutagenicity	Not classified	-	-	-	Since there were the negative results (EHC 196 (1997), DFGOT vol.16 (2001), PATTY (4th, 1994)) by the micronucleus test which used mouse erythrocytes, we classified it as Out Of Category.

6	Carcinogenicity	Classification not possible	-	-	-	Since it is not evaluated in the institution indicated in the technical indicator, it cannot classify. In addition, carcinogenic is not admitted in inhalation exposure tests using rats and mice.
7	Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Since although there are descriptions that increase in fetal malformation or fetal death was observed in an oral and inhalation exposure test using pregnant rats and mice (EHC 196 (1997), ACGIH (7th, 2001), DFGOT vol.16 (2001) and PATTY (4th, 1994)) and there is no reliable data of human examples of exposures, it was classified into class 1B. There are descriptions that decrease in testosterone concentration or testicular degeneration was observed in male rats (EHC 196 (1997), DFGOT vol.16 (2001), and PATTY (4th, 1994)). On the contrary, however, some descriptions of any effects on reproductive tract of males were not observed, and so effects on the reproductive ability of males are not clear.
8	Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, optic organ, systemic toxicity); Category 3 (respiratory tract irritation, narcotic effects)	Health hazard	Danger	Cause damage to organs (central nervous system, optic organ, systemic toxicity); May cause respiratory irritation or may cause drowsiness and dizziness (respiratory tract irritation)	According to the descriptions that central nervous system depression and visual organ disorder are observed by acute oral or inhalation exposure by humans (EHC 196 (1997), ACGIH (7th, 2001), DFGOT vol.16 (2001), PATTY (4th, 1994) and Japan Society for Occupational Health Recommendations of Occupational Exposure Limits (1993)), and that metabolic acidosis is observed in human evidence of exposure (ACGIH (7th, 2001) and DFGOT vol.16 (2001)), their targets were judged to be the central nervous system, visual organs, and systemic toxicity, and they were all set as Category 1. Moreover, based on the descriptions that respiratory irritation was observed by the repeated inhalation exposure tests with rats (EHC 196 (1997) and PATTY (4th, 1994)) and that mucosal irritation is observed in humans (Japan Society for Occupational Health Recommendation of Occupational Exposure Limits), and since the anesthetic actions were identified by the rat, mouse, Macaca mulatta, etc., (EHC 196 (1997) and PATTY (4th, 1994)). So it was judged that there were respiratory irritation and anesthetic actions, and they were all set as Category 3.
9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system, visual organs)	Health hazard	Danger	Causes damage to organs (central nervous system, visual organs) through prolonged or repeated	It was set all to Category 1 because target organs are a central nervous system and an optic organ according to the description of the central nervous system depression and the optic organ's disorders were seen in a case of long-term exposure in humans (EHC 196 (1997), ACGIH (7th, 2001), and DFGOT vol.16 (2001)).
10	Aspiration hazard	Classification not possible	-	-	-	Insufficient 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 carried out the outside of Category from 24-hour LC50=900.73mg/L of Crustacea (Brine shrimp) (EHC196, 1998).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since not water-insoluble (water solubility=1.00*106mg/L(PHYSROP Database, 2005)) and acute toxicity is low.