

GHS Classification

ID96

CAS 109-86-4

Physical Hazards

Ethylene glycol monomethyl ether

Date Classified: Mar. 23, 2006 (Environmental Hazards: Feb. 10, 2006)

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 atom 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	Category 3	Flame	Warning	Flammable liquid and vapour	The flashing point is 39degC (ICSC, 2003) (closed cup flash test), which is classified into Category 3, or Class 3 and Container III (UN Recommendations on the Transport of Dangerous Goods, UN#1188).
7 Flammable solids	Not applicable	—	—	—	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	—	—	—	Containing no atom groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified	—	—	—	Not pyrophoric when in contact with air at ordinary temperatures: the flashing point is 285degC (ICSC, 2003)
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 (but not fluorine and chlorine), with the oxygen 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	Not classified	—	—	—	Classified into Class 3 (UN Recommendations on the Transport of Dangerous Goods, UN#1188)

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 LD50 value of 2435mg/kg calculated from the testing data of rat LD50 (oral route) of 2460mg/kg (ECETOC TR64, 1995) , 3250mg/kg (ECETOC TR64, 1995) , 3400mg/kg (ECETOC TR64, 1995) and 2370mg/kg (MOE Risk Assessment Vol. 2, 2003).
1 Acute toxicity (dermal)	Category 4	Exclamation mark	Warning	Harmful in contact with skin	Based on the LD50 value of 1290mg/kg calculated from the testing data of rat LD50 (dermal route) of 1300 mg/kg (ECETOC TR64, 1995) , 2000mg/kg (DFGOT Vol.6, 1994) , 1290mg/kg (PATTY 4th, 2000) and 3900mg/kg (PATTY 4th, 2000) .
1 Acute toxicity (inhalation: gas)	Not applicable	—	—	—	Due to the fact that the substance is "liquid" according to the GHS definition and inhalation of its gas is not expected.
1 Acute toxicity (inhalation: vapour)	Category 3	Skull and crossbones	Danger	Toxic if inhaled	Based on the LC50 value of 6.18 mg/L (1,956ppm), calculated from the testing data of rat LC50 (7 hour inhalation of vapour) of 4.67mg/L (1,478ppm)(MOE Risk Assessment Vol. 2, 2003), was lower than 90% of the saturated vapor concentration (8,200 ppm) under a saturated vapour pressure of 0.83 kPa (20degC) (ICSC, 2003), 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 evidence of mild irritation from rabbit skin irritation tests (PATTY 4th, 2000), although insufficient data available.
3 Serious eye damage / eye irritation	Category 2B	—	Warning	Causes eye irritation	Based on the evidence of mild irritation from rabbit skin irritation tests (PATTY 4th, 2000) and the human evidence of complete recovery within 48 hours (PATTY 4th, 2000), although insufficient data available.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Classification not possible	—	—	—	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Not classified	—	—	—	Based on the negative data on heritable mutagenicity tests (dominant lethal tests) and somatic cell mutagenicity tests in vivo (chromosomal aberration tests) and the absence of data on germ cell mutagenicity tests in vivo, described in CERl Hazard Data 2000-26 (2001).
6 Carcinogenicity	Classification not possible	—	—	—	No data available
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Based on the evidence of effects on foetal development at dosing levels not toxic to dams in mice and rats, described in CERl Hazard Data 2000-26 (2001).
8 Specific target organs/systemic toxicity following single exposure	Category 1 (liver, kidneys, central nervous system, testes)	Health hazard	Danger	Causes damage to organs (liver, kidneys, central nervous system, testes)	Based on the human evidence including "acute hemorrhagic gastritis, fatty degeneration in the liver, black discoloration of the kidneys and renal tubule degeneration found at autopsy (EHC 115, 1990)" and "neurological symptoms (distraction, agitation, etc.), nausea, cyanosis, hyperventilation, tachycardia, metabolic acidosis and nephropathy" (EHC 115, 1990) and the evidence from animal studies including "degeneration of sperm cells and atrophy of testes observed in histological observation", "degeneration of germinal epithelium in the testes associated with cytoplasmic shrinkage and mitochondrial swelling in Sertoli cells" (ACGIH 7th, 2001). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1. The gastric effect was probably due to irritation, and hyperventilation was not so severe as to be classified as Category 1, so the stomach and the respiratory system were not considered as target organs.

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system, hematopoietic system, testes)	Health hazard	Danger	Causes damage to organs (central nervous system, hematopoietic organs, testis) through prolonged or repeated exposure	Based on the human evidence including "anemia, central nervous system manifestation", "myelosuppression", "encephalopathy, bone-marrow damage, pancytopenia", "oligospermia, azoospermia" and "reduction of bone marrow cell density, degeneration of testis germinal epithelium, atrophy of thymic lymphatic tissue, decreased lymphocyte counts in the spleen and mesenteric lymphatic tissue" (ACGIH 7th, 2001) and the evidence from animal studies including "degeneration of testes" (IRIS, 2003). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.
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>85mg/L of the crustacea (Daphnia magna) (MOE eco-toxicity tests of chemicals, 2002).
11 Hazardous to the aquatic environment (chronic)	Not classified	–	–	–	Since it was not water-insolubility (the water-solubility =1.00*106mg/L (PHYSPROP Database, 2005)), and acute toxicity was low, it was classified into Not classified.