

## GHS Classification

**ID94**

**Ethylene glycol**

**CAS 107-21-1**

Date Classified: Apr. 20, 2006 (Environmental Hazards: Jan. 25, 2007)

**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	Not classified	-	-	-	The flash point is 111degC (c.c.) (ICSC, 2000)
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	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures: the auto-ignition temperature is 398degC (ICSC, 2000)
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	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 5	-	Warning	May be harmful if swallowed	Based on the rat LD50 (oral route) of 4,000-10,200mg/kg (CICAD 45 (2002)).
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on the rat LD50 (dermal route) of 10,600 mg/kg (CICAD 45 (2002)).
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: dust, mist)	Classification not possible	-	-	-	Insufficient data available
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 and guinea pig skin irritation tests (CICAD 45 (2002)): "mild dermal irritation in rabbits and guinea pigs."
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the description in the report on rabbit eye irritation tests (CICAD 45 (2002)): Short-term exposure to ethylene glycol (liquid or vapour) causes conjunctival irritation with no permanent damage to the cornea.
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: Insufficient data available
5 Germ cell mutagenicity	Not classified	-	-	-	Based on the negative data on rat dominant lethal tests, absence of data on germ cell mutagenicity tests in vivo, and the negative data on somatic cell mutagenicity tests in vivo (chromosome aberration tests/micronucleus tests), described in CICAD 45 (2002).
6 Carcinogenicity	Not classified	-	-	-	Due to the fact that the substance is classified as Category A4 by ACGIH (2001).
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Based on the description in the report on mouse continuous breeding and rat teratogenicity tests (CICAD 45 (2002)): Malformations, retarded ossification and unossification are observed in offspring at dosing levels not toxic to dams.
8 Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, kidneys, heart, respiratory organs)	Health hazard	Danger	Causes damage to organs (central nervous system, kidneys, heart, respiratory organs)	Based on the human evidence including: "consciousness disorder, convulsions and stupor (after 34 days of accidental ingestion); an increase in urea nitrogen, creatinine and uric acid concentrations (blood examination); albuminuria, hematuria and nephropathy (urine examination); degeneration of convoluted tubules (renal biopsy); mild pulmonary congestion," "acute effects are observed in four stages: effects on the central nervous system (after 0.5-12 hours of exposure); effects on the heart-lung system (after 12-36 hours of exposure); nephropathy in specimens surviving from Stage 1 and 2 (exposure to ethylene glycol); degeneration of the central nervous system" (CERI Hazard Data 97-24 (1998)).
9 Specific target organs/systemic toxicity following repeated exposure	Category 1 (central nervous system, respiratory organs, heart)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (central nervous system, respiratory organs, heart)	Based on human evidence including "loss of consciousness and nystagmus," "mild headache and backache, upper respiratory tract irritation" (MOE Risk Assessment vol. 3 (2004)), and the evidence from animal studies including "inflammatory degeneration of the lung and heart" (MOE Risk Assessment vol. 3 (2004)) 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
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### 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 96 hours LC50>100mg/L of the fish ( <i>Oryzias Latipest</i> ) (MOE eco-toxicity tests of chemicals (2001) and others.).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since it was not water-insolubility (the water-solubility =1.00*106mg/L (PHYSROP Database, 2005)), and acute toxicity was low, it was classified into Not classified.