

GHS Classification

ID370

Glyoxal

CAS 107-22-2

Date Classified: May 24, 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 "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	Classification not possible	—	—	—	No data available. Flash point of 40% solution: <=100degC, according to ICSC (2003)
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	Classification not possible	—	—	—	No data available
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	—	—	—	Test methods applicable to gaseous substances are not available (boiling point: 50.4degC (Lide, 84th, 2003), test temperature: 55degC)

Health Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
1 Acute toxicity (oral)	Category 3	Skull and crossbones	Danger	Toxic if swallowed	Based on the rat LD50 (oral route) value of 200mg/kg (MOE Risk Assessment vol.2 (2003)).
1 Acute toxicity (dermal)	Not classified	—	—	—	Based on the rabbit LD50 (dermal route) value of 12,700mg/kg (CICAD 57 (2004)).
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)	Not classified	—	—	—	Based on the rat LC50 (4-hour inhalation exposure) value of 2.44mg/L (equivalent to 5.860ppm) (SIDS (2003)) was lower than 90% of the saturated vapour concentration (264,000ppm) under a saturated vapour pressure of 26.7kPa (20degC), the substance is "Not classified."
1 Acute toxicity (inhalation: dust, mist)	Classification not possible	—	—	—	No data available
2 Skin corrosion / irritation	Category 2	Exclamation mark	Warning	Causes skin irritation	Based on the human evidence of "moderate irritation," although the results of animal skin irritation tests indicate "severe irritation" (CERI Hazard Data 98-8 (1999), SIDS (2003)), "mild irritation" (CERI Hazard Data 98-8 (1999), SIDS (2003)), "erythema" (CICADS 57 (2004)), "no irritation" (SIDS (2003))
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the description in the report on the rabbit eye irritation tests: "severe irritant" (CERI Hazard Data 98-8 (1999)); "severe erythema and mild edema of the conjunctiva, and inflammation and opacity of the iris were observed. The reactions resolved 1-2 weeks after exposure"; "severe conjunctival erythema/inflammation and iris inflammation/opacity" (SIDS (2003)). The substance is thus considered to cause severe irreversible irritation of the eye.
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Category 1	(Respiratory sensitization) - (Skin sensitization) Exclamation mark	(Respiratory sensitization) - (Skin sensitization) Warning	(Respiratory sensitization) - (Skin sensitization) May cause allergic skin reaction	Respiratory sensitization: No data available Skin sensitization: based on the positive results in guinea pig skin sensitization tests performed based on the Buehler and Maximization Methods (SIDS (2003) and CERI Hazard Data 98-8 (1999)), and the human epidemiological evidence of "skin necrosis, erythema and edema." The substance is thus considered to cause "skin sensitization."
5 Germ cell mutagenicity	Not classified	—	—	—	Based on the absence of data on multi-generation mutagenicity tests, germ cell mutagenicity tests in vivo, negative data on somatic cell mutagenicity tests in vivo (micronucleus test), described in CERI Hazard Data 98-8(1999), SIDS (2003), NTP DB (Access on October 2005), CICAD
6 Carcinogenicity	Not classified	—	—	—	Due to the fact that the substance is classified as A4 by ACGIH (2001).
7 Toxic to reproduction	Classification not possible	—	—	—	Insufficient data available
8 Specific target organs/systemic toxicity following single exposure	Category 2 (respiratory organs, liver, heart, kidney, adrenal, nervous system)	Health hazard	Warning	May causes damage to organs (respiratory organs, liver, heart, kidneys, adrenal, nervous system)	Based on the evidence from animal studies including "hemorrhage of the lung/liver/heart, congestion of the lung/gastrointestinal tract/adrenal, discoloration of the kidney, mottled discoloration of the liver, coma, piloerection" (SIDS (2003)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 2.
9 Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs)	Health hazard	Danger	Causes damage to organs through prolonged or repeated exposure (respiratory)	Based on the evidence from animal studies including "epidermal hyperplasia of pharynx mucosal surface with infiltration of submucosal lymphocytes" (CERI Hazard Data 98-8 (1999)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1.

10	Aspiration hazard	Classification not possible	-	-	-	Insufficient 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)	Category 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 96 hours LC50=86mg/L of the fish (Fathead Minnows) (SIDS (2003) and others.).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 65% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=-1.66 (PHYSPROP Database, 2005)), it was classified into Not classified.