

GHS Classification

ID86

CAS 106-92-3

Physical Hazards

1-Allyloxy-2,3-epoxypropane

Date Classified: Apr. 20, 2006 (Environmental Hazards: Mar. 31, 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 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	Category 3	Flame	Warning	Flammable liquid and vapour	The flash point is 48degC (c.c.) (ICSC, 1999) which is classified into Category 3. Classified into Class 3 and Packing Group III (UN#2219) (UN Recommendations on the Transport of Dangerous Goods)
7 Flammable solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not classified	-	-	-	No data available, though containing unsaturated bonds and a distorted ring structure. Classified into Class 3 (UN Recommendations on the Transport of Dangerous Goods, UN#2219)
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	Not classified	-	-	-	Classified into Class 3 (UN Recommendations on the Transport of Dangerous Goods, UN#2219)

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	Based on the rat LD50 (oral route) of 830mg/kg (PATTY (4th, 1999)).
1 Acute toxicity (dermal)	Category 5	-	Warning	May be harmful in contact with skin	Based on the rabbit LD50 (dermal route) of 2.550mg/kg (ACGIH (7th, 2001)).
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 rat LC50 (4 hours) value of 950ppm, calculated from the testing data of rat LC50 (inhalation of vapour) of 3.1mg/L (8 hours), was lower than 90% of the saturated vapor concentration (6.300ppm) under a saturated vapour pressure of 0.63kPa (25degC) (ICSC, 1999), 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 2	Exclamation mark	Warning	Causes skin irritation	Based on the testing data of rabbit skin irritation tests (CERI Hazard Data 2001-14 (2002), CERI-NITE Hazard Assessment No.68 (2005), PATTY (4th, 1999)); "severe or moderate irritant."
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes serious eye irritation	Based on the testing data of animal eye irritation tests (CERI Hazard Data 2001-14 (2002), CERI-NITE Hazard Assessment No.68 (2005), PATTY (4th, 1999)); "severe irritant, with irreversible effects observed."
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 data on human health effects (CERI-NITE Hazard Assessment No.68 (2005), PATTY (4th, 1999)).
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects	Based on negative data on germ cell multi-generation mutagenicity tests in vivo (dominant lethal tests), the absence of data on germ cell mutagenicity tests in vivo, positive data on somatic cell mutagenicity tests in vivo (chromosome aberration tests), and the absence of data on germ cell genotoxicity tests in vivo, described in CERI-NITE Hazard Assessment No.68 (2005).
6 Carcinogenicity	Not classified	-	-	-	Due to the fact that the substance is classified as Category A4 by ACGIH (2001).
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the description in CERI-NITE Hazard Assessment No.68 (2005): The results of rat reproductive toxicity tests suggest a decrease in male fertility potential and the number of corpus luteum, and an increase in the incidence of abnormal spermatozoa (no description available of the general toxicity).

8	Specific target organs/systemic toxicity following single exposure	Category 1 (central nervous system, respiratory organs, liver, kidneys), Category 3 (narcotic effects)	Health hazard and Exclamation mark	Danger Warning	Causes damage to organs (central nervous system, respiratory organs, liver, kidneys) (Narcotic effects) May cause drowsiness or dizziness	Based on the evidence from animal studies including "suppression of the central nervous system, severe irritation to the respiratory organs (salivation, dyspnea, etc.)," "gasping respiration caused by irritation, dilation of the stomach caused by aerophagia, turbinate congestion/edema, nasal exudates, hepatic/renal congestion, pulmonary edema" (inhalation exposure), "moderate/severe edema, discoloration (purple), dyspnea and lethargy (observed in deceased subjects)" (dermal exposure) (CER/NITE Hazard Assessment No.68 (2005)), with respiratory irritation and narcotic effects observed.
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 organs)	Based on the evidence from animals including "inflammation of the nasal respiratory/olfactory epithelium," "hyperplasia of the nasal gland, purulent inflammation of the nasal mucosa, degeneration/hyperplasia of the respiratory epithelium," and "squamous epithelium metaplasia, pneumonia" (CER/NITE Hazard Assessment No.68 (2005)). The effects on experimental animals were observed at dosing levels within the guidance value ranges for Category 1 (respiratory organs).
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)	Category 3	-	-	Harmful to aquatic life	It was classified into Category 3 from 96 hours LC50=30mg/L of the fish (Goldfish) (CER/NITE Hazard Assessment Report (2005) and others.).
11 Hazardous to the aquatic environment (chronic)	Category 3	-	-	Harmful to aquatic life with long lasting effects	Although acute toxicity was Category 3 and the bio-accumulation potential was low (log Kow=0.34(Existing Chemical Safety Inspections Data)), since there was no rapidly degrading (the decomposition by BOD: 37%(Existing Chemical Safety Inspections Data)), it was classified into Category 3.