

GHS Classification

ID99

CAS 75-56-9

Physical Hazards

1,2-Epoxypropane; Propylene oxide

Date Classified: Mar. 23, 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 1	Flame	Danger	Extremely flammable liquid and vapour	The flash point is -37degC (c.c.) (ICSC, 1999) and the boiling point is 34degC, which is classified into Category 1. Classified into Class 3 and Packing Group I (UN#1280) (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 a distorted ring structure. Classified into Class 3 (UN#1280) by UN Recommendations on the Transport of Dangerous Goods.
9 Pyrophoric liquids	Not classified	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures; the auto-ignition temperature is 449degC (ICSC, 1999)
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: 34degC (ICSC, 1999), test temperature: 55degC

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 testing data of rat LD50 (oral route) of 1,140mg/kg (EHC 56 (1985)), 520mg/kg (EHC 56 (1985)).
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No data available
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 2	Skull and crossbones	Danger	Fatal if inhaled	Based on the LC50 value (4 hours) of 399ppm, representing the lower of the two testing data of rat LC50 (4 hour inhalation of vapour) of 0.948mg/L (EHC 56 (1985)) and 4.1mg/L (EHC 56 (1985)), was lower than 90% of the saturated vapor concentration (580,000ppm) under a saturated vapour pressure of 59kPa (20degC) (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 1	Corrosion	Danger	Causes severe skin burns and eye damage	Based on the description in the report on rabbit skin irritation tests (CERI-NITE Hazard Assessment No.47 (2004)): The substance is corrosive to the skin.
3 Serious eye damage / eye irritation	Category 1	Corrosion	Danger	Causes serious eye damage	Based on the classification into Category 1 (Corrosive Substances).
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Category 1	Exclamation mark	Warning	May cause allergic skin reaction	Respiratory sensitization: No data available Skin sensitization: Due to the fact that the substance is classified as Skin sensitization by ACGIH (2001).
5 Germ cell mutagenicity	Category 2	Health hazard	Warning	Suspected of causing genetic defects	Based on negative data on multi-generation mutagenicity tests (dominant lethal tests), the absence of data on germ cell mutagenicity in vivo, positive data on somatic cell mutagenicity tests in vivo (micronucleus tests and chromosome aberration tests), and the absence of data on germ cell genotoxicity tests in vivo, described in CERI-NITE Hazard Assessment No.47 (2004).
6 Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer	Due to the fact that the substance is classified as Category R by NTP (2005), Group 2B by IARC (1994), Category A3 by ACGIH (2001) and Category B2 by EPA (1994).
7 Toxic to reproduction	Category 2	Health hazard	Warning	Suspected of damaging fertility or the unborn child	Based on the description in the report on rat reproductive toxicity tests (CERI-NITE Hazard Assessment No.47 (2004)): Effects on female infertility are observed (though no description is available for general toxicity), while the number of corpora lutea decreases at dosing levels inducing general toxicity.
8 Specific target organs/systemic toxicity following single exposure	Category 3 (respiratory tract irritation)	Exclamation mark	Warning	May cause respiratory irritation	Based on the human evidence including "pulmonary/eye irritation, headache, hyposthenia, diarrhea, cyanosis" (CERI-NITE Hazard Assessment No.47 (2004)), and the evidence from animal studies including "dyspnea and nasal hemorrhage." Symptoms such as headache and hyposthenia are considered the secondary effects caused by cyanosis.
9 Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Based on the fact that the results are derived solely from inhalation exposure tests, though dosing levels inducing general toxicity are "not classified."
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=52mg/L of the fish (Rainbow Trout) (EU-RAR (2002) and others.).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (the decomposition by BOD: 96% (Existing Chemical Safety Inspections Data)) and the bio-accumulation was low (log Kow=0.03 (PHYSPROP Database, 2005)), it was classified into Not classified.