

GHS Classification

ID92

Ethylbenzene

CAS 100-41-4

Date Classified: Apr. 20, 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	Category 2	Flame	Danger	Highly flammable liquid and vapour	The flash point is 18degC (c.c.) (ICSC, 1999) and the boiling point is 136degC, which is classified into Category 2. Classified into Class 3 and Packing Group II (UN#1175) (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 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 432degC (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 no oxygen, fluorine and chlorine
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#1175)

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 testing data of rat LD50 (oral route) of 3,500mg/kg representing the lower of the two testing data, 3,500mg/kg (EHC 186 (1996)) and 4,769mg/kg (ATSDR (1999))
1 Acute toxicity (dermal)	Not classified	-	-	-	Based on the rabbit LD50 (dermal route) of 15,400 mg/kg (ACGIH (7th, 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: vapour)	Category 4	Exclamation mark	Warning	Harmful if inhaled	Based on the rat LC50 (1999 hour inhalation of vapour) value of 17.2 mg/L (4,000 ppm) (ATSDR (1999), EHC 186, (1996)) was lower than 90% of the saturated vapor concentration (9,000 ppm) under a saturated vapour pressure of 0.9 kPa (20degC), the substance was considered as "vapour containing 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 primary skin irritation tests (ATSDR (1999)): "A 24-hour application causes mild skin irritation" (ethyl benzene is considered mildly irritating to the skin, though the results are not those of 4-hour application).
3 Serious eye damage / eye irritation	Category 2B	-	Warning	Causes eye irritation	Based on the evidence of rabbit eye irritation tests (EHC 186 (1996)) "mild irritation to the conjunctiva, and no or reversible effects, if any, on the cornea." The substance is thus considered slightly or mildly irritating to the eye.
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, the substance is considered to cause no skin sensitization, based on the results of skin sensitization tests on human volunteers (ACGIH (7th, 2002), EHC 186 (1986)). However, these results are insufficient to make conclusions about the skin sensitization, which is not evaluated by ACGIH.
5 Germ cell mutagenicity	Not classified	-	-	-	Based on the absence of data on multi-generation mutagenicity tests and germ cell mutagenicity tests in vivo and negative data on somatic cell mutagenicity tests in vivo (micronucleus tests), described in SIDS (2005).
6 Carcinogenicity	Category 2	Health hazard	Warning	Suspected of causing cancer	Due to the fact that the substance is classified as Group 2B by IARC (2000) and Category A3 by ACGIH (2001).
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Based on the description of mice/rat teratogenicity tests (CERL Hazard Data 96-41 (1998), SIDS (2005), MOE Risk Assessment vol. 1 (2002)); Toxic effects on the embryo (urinary malformation) are observed at dosing levels not toxic to maternal animals.

8	Specific target organs/systemic toxicity following single exposure	Category 2 (central nervous system) Category 3 (respiratory tract irritation)	Health hazard and Exclamation mark	Warning	May cause damage to organs (central nervous system) (Respiratory tract irritation) May cause respiratory irritation	Based on the results of animal experiments (CERI Hazard Data 96-41 (1998)): The effects on experimental animals are observed at dosing levels within the guidance value ranges for Category 2, with respiratory irritation also observed.
9	Specific target organs/systemic toxicity following repeated exposure	Classification not possible	-	-	-	Insufficient data available
10	Aspiration hazard	Category 1	Health hazard	Danger	May be fatal if swallowed and enters airways	Based on the description in ICSC (J) (1995): Ethyl benzene, if swallowed, may cause chemical pneumonia due to miswallowing. The substance is a hydrocarbon, the kinematic viscosity of which stands at 0.74mm ³ /s (25degC).

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Category 1	Environment	Warning	Very toxic to aquatic life	It was classified into Category 1 from 96 hours LC50=0.4mg/L of the crustacea (Brown Shrimp) (CERI/NITE Hazard Assessment Report (preliminary version), 2006).
11 Hazardous to the aquatic environment (chronic)	Not classified	-	-	-	Since there was rapidly degrading (it was easy to degrade in essentials and to strip from water (SIDS (2005))) and the bio-accumulation was low (log Kow=3.15 (PHYSPROP Database (2005))), it was classified into Not classified.