

GHS Classification

ID16

CAS 1330-20-7

Xylene

Date Classified: Mar. 23, 2006 (Environmental Hazards: May 24, 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 atom 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 flashing points are 32degC for o-xylene and 27degC for m-xylene and p-xylene (ICSC 2002) (closed cup flash test), each of which is classified into Category 3 or Class 3 and Container II-III (UN Recommendations on the Transport of Dangerous Goods, UN#1307).
7 Flammable solids	Not applicable	-	-	-	Classified as "liquid" according to GHS definition
8 Self-reactive substances and mixtures	Not applicable	-	-	-	No atom groups with explosive or self-reactive properties
9 Pyrophoric liquids	Not classified	-	-	-	Not pyrophoric when in contact with air at ordinary temperatures: the flashing points are 463degC for o-xylene and 527degC for m-xylene and p-xylene (ICSC 2002).
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#1307)

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) value of 3,500 mg/kg representing the lower of the two testing data, 3,500mg/kg (CaPSAR, 1993) and 4,300mg/kg (MOE Risk Assessment Vol. 1, 2002).
1 Acute toxicity (dermal)	Classification not possible	-	-	-	No definitive value available, although the substance can be classified as Category 5 or not classified based on the rabbit LD 50 (dermal route) value of >4,350 mg/kg. (IUCLID 2000).
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 29.08 mg/L (MOE Risk Assessment Vol.1, 2002) (equivalent to 6,700ppm) was lower than 90% of the saturated vapor concentration (8,000ppm) under a saturated vapour pressure of 0.8 kPa (20degC), 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 description in the report on the rabbit skin irritation test (CERI-NITE Hazard Assessment No.62, 2004): "moderate irritant".
3 Serious eye damage / eye irritation	Category 2A	Exclamation mark	Warning	Causes severe eye irritation	Based on the description in the report on the rabbit eye irritation test (CERI-NITE Hazard Assessment No.62, 2004): "moderate irritant".
4 Respiratory/skin sensitization	Respiratory sensitization: Classification not possible Skin sensitization: Classification not possible	-	-	-	Respiratory sensitization: No data available Skin sensitization: No data available
5 Germ cell mutagenicity	Not classified	-	-	-	Based on the negative data on human multi-generation epidemiological studies and somatic cell mutagenicity tests in vivo (micronucleus/chromosome tests) and the absence of data on heritable mutagenicity tests, germ cell mutagenicity tests in vivo and germ cell genotoxicity tests in vivo, described in CERI-NITE Hazard Assessment No.62 (2004), CaPSAR (1993), IARC (1999) and NTP DB (Access on
6 Carcinogenicity	Not classified	-	-	-	Due to the fact that the substance is classified as Category A4 by ACGIH (2001) and Group 3 by IARC (1999).
7 Toxic to reproduction	Category 1B	Health hazard	Danger	May damage fertility or the unborn child	Based on the evidence of weight reduction and hydrocephalus in foetuses at dosing levels not toxic to parent animals in mouse developmental toxicity tests, described in CERI-NITE Hazard Assessment (No. 62, 2004), EHC 190 (1997) and IRIS (2003).
8 Specific target organs/systemic toxicity following single exposure	Category 1 (respiratory organs, liver, central nervous system, kidneys) Category 3 (narcotic effects)	Health hazard	Danger	Causes damage to organs (respiratory organs, liver, central nervous system, kidney), may cause sleepiness and dizziness	Based on the human evidence including "throat irritation, severe pulmonary congestion, alveolar hemorrhage, pulmonary edema, congestion accompanying hepatomegaly, centrilobular vacuolation of hepatocytes, nerve cell damage associated with dot hemorrhage, swelling and disappearance of Nissl bodies, limb cyanosis, a transient increase in serum transaminase activity, an increase in the blood level of urea, a decrease in endogenous creatinine clearance in the urine, liver damage, severe kidney damage, amnesia, coma" (CERI-NITE Hazard Assessment No.62, 2004) and "pulmonary congestion, pulmonary edema, focal alveolar hemorrhage" (MOE Risk Assessment Vol.1, 2002) and the evidence from animal studies including "strong narcotic effect (EHC 190, 1997). The basis for the classification includes data on xylene with unknown composition or containing other substances (ethyl benzene, toluene, etc.).

9	Specific target organs/systemic toxicity following repeated exposure	Category 1 (respiratory organs, nervous system)	Health hazard	Danger	Causes damage to organs (respiratory organs, nervous systems) through prolonged or repeated	Based on the human evidence including "eye/nose irritation, thirst" (DFGOT Vol. 15, 2001) and "chronic headache, chest pain, abnormal electroencephalogram, dyspnea, cyanosis of the hands, fever, a decrease in WBC count, discomfort, impairment of pulmonary function, a decrease in working capacity, physical/mental disorders" (CERI-NITE Hazard Assessment No.62, 2004). The basis for the classification includes data on xylene with unknown composition or containing other substances (ethyl benzene, toluene, etc.).
10	Aspiration hazard	Category 2	Health hazard	Warning	May be harmful if swallowed or inhaled	Based on the description in ICSC(J)(2002) regarding o-xylene, m-xylene and p-xylene: "May cause aspiration and chemical pneumonia if swallowed".

Environmental Hazards

Hazard class	Classification	symbol	signal word	hazard statement	Rational for the classification
11 Hazardous to the aquatic environment (acute)	Category 2	-	-	Toxic to aquatic life	It was classified into Category 2 from 96 hours LC50=3.3mg/L of the fish (Rainbow Trout) (CERI/NITE Hazard Assessment Report, 2005).
11 Hazardous to the aquatic environment (chronic)	Category 2	Environment	-	Toxic to aquatic life with long lasting effects	Although acute toxicity was Category 2 and the bio-accumulation potential was low (log Kow=3.16(PHYSPROP Database, 2005)), since there was no rapidly degrading (the decomposition by BOD: 39%(CERI Hazard Data, 2005)), it was classified into Category 2.